

*National
Strategic Plan
for Tuberculosis
Training and
Education*
2004-2008

NATIONAL STRATEGIC PLAN

for

TUBERCULOSIS TRAINING AND EDUCATION

2004–2008

NATIONAL STRATEGIC PLAN FOR TUBERCULOSIS TRAINING AND EDUCATION



MISSION STATEMENT

THE NATIONAL STRATEGIC PLAN FOR TUBERCULOSIS TRAINING AND EDUCATION
PROMOTES AND GUIDES TRAINING AND EDUCATION EFFORTS
TO CONTROL AND ELIMINATE TUBERCULOSIS.



FIVE-YEAR GOALS

2004–2008

(NOT IN PRIORITY ORDER)

BUILD, STRENGTHEN, AND MAINTAIN COLLABORATION
AMONG THE KEY AGENCIES AND ORGANIZATIONS IN TRAINING

BUILD, STRENGTHEN, AND MAINTAIN COLLABORATION
WITH GLOBAL PARTNERS

DEVELOP, IMPROVE, FACILITATE ACCESS TO, AND MAINTAIN AVAILABILITY OF,
TB TRAINING AND EDUCATION RESOURCES

IMPROVE AND SUSTAIN KNOWLEDGE, SKILLS, AND PRACTICES
TAILORED TO LOCAL EPIDEMIOLOGICAL CIRCUMSTANCES

IDENTIFY AND MOBILIZE FINANCIAL RESOURCES
FOR TB TRAINING AND EDUCATION

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EXECUTIVE SUMMARY

DEVELOPING THE STRATEGIC PLAN

THE WORLDWIDE TUBERCULOSIS (TB) epidemic is a major global health crisis. In the United States, the problem is less severe, but the resurgence of TB between the mid-1980s and the early 1990s demonstrated that the U.S. continues to be vulnerable. It also underscored the importance of maintaining vigilance against TB, especially at a time when there is strong competition for diminishing healthcare resources. Yet many healthcare and social service providers working with individuals who have or are at risk for TB know little about this disease. This makes comprehensive TB training and education an essential strategy to help combat TB.

A broadly based group of TB experts has collaborated to develop the *National Strategic Plan for Tuberculosis Training and Education*. The Strategic Plan provides a blueprint for building a strong, coordinated, and systematic approach to TB training and education. The original Strategic Plan was produced to guide the development of TB training and education for the period 1999–2003. In 2003, the planners revisited the Strategic Plan to assess its achievements, identify new and ongoing

challenges, and formulate strategies to carry the plan forward for the next five years. This document presents the updated and renewed Strategic Plan for 2004–2008.

The Purpose of the Strategic Plan. The Strategic Plan was created because its developers recognized that TB training and education programs are fundamentally important if TB is to be controlled and eliminated. Yet efforts in this area have often been fragmented, while resources to support or expand them are limited and likely to decline. The Strategic Plan is intended to encourage a comprehensive, coordinated, and sustained TB training and education effort that is targeted to the specific needs of various providers and communities. Its audience includes agencies and organizations that are involved in TB training and education for providers in the public and private sectors, with the term “providers” used in its broadest sense. The aim of the Strategic Plan is to engage the commitment, cooperation, and collaboration of local, state, national, and international stakeholders.

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The Initial Planning Process. The original Strategic Plan was the result of a year-long, broadly inclusive collaboration by institutions, agencies, and individuals representing the full spectrum of TB care, control, and prevention efforts. The three Model Tuberculosis Centers—Francis J. Curry National Tuberculosis Center (CNTC), Charles P. Felton National Tuberculosis Center at Harlem Hospital, and New Jersey Medical School National Tuberculosis Center—working in conjunction with the Division of Tuberculosis Elimination of the Centers for Disease Control and Prevention (CDC), coordinated the planning process. Through the CNTC, the CDC funded a secretariat to provide the administrative and logistic support necessary for a voluntary planning effort. A Steering Committee conducted a needs assessment and guided the planning process with consultation from an Advisory Committee of national TB experts.

Six workgroups developed position papers that contain background information on topics or populations central to TB training and education: 1) private-sector providers; 2) public health sector providers; 3) correctional and other detention facilities; 4) providers serving high-risk populations (the homeless, substance abusers, HIV-infected individuals; 5) international medical graduates and providers serving foreign-born patients; and 6) international liaison. Based on their findings, the workgroups recommended goals and strategic objectives to be considered for inclusion in the Strategic Plan.

The framework for the Strategic Plan was established during a Strategic Planning Summit held in Oakland, California, in October 1998. The participants established the mission and goals, and identified the first set of strategic objectives. The Strategic Plan was published in January 1999. A tribute to its value came from the Institute of Medicine (IOM); in its 2000 report, *Ending Neglect: The Elimination of Tuberculosis in the United States*, the IOM recommended full funding for the Strategic Plan.¹

Renewing the Strategic Plan for the Next Five Years. In October 2002, the planners met to reaffirm their commitment to the Strategic Plan and lay the groundwork for a process to renew it for another five years. There was a strong consensus that the Strategic Plan is still needed, and that steps should be taken to ensure a systematized and sustainable planning and implementation process.

The Strategic Plan for the new five-year cycle incorporates the best thinking of more than 50 TB experts from around the country. The CDC again funded a secretariat to provide logistical and administrative support for the planning process. The six workgroups were reconvened to update the position papers and recommend new strategic objectives. Planners conducted a national survey in 2003 to assess current TB training and education trends and needs. Another assessment tool was the *TB Education and Training Resource Guide*, which evolved from an earlier inventory

maintained by the CDC and the one compiled as part of the original Strategic Plan.

The collaborative effort of the planners is intended to carry the Strategic Plan forward and ensure that TB training and education will

continue to be a high priority for policy makers, funders, educators, and service-delivery programs that have a stake in the elimination and control of TB.

TB TRAINING AND EDUCATION: CHALLENGES, ACCOMPLISHMENTS, AND ISSUES

AFTER RISING FOR SEVERAL YEARS, THE U.S. case rate for TB peaked in 1992 and has declined every year since. Despite this, TB remains a serious public health concern. Sustained efforts and resources are needed to ensure that the progress made in the 1990s will continue.

Challenges in Combating TB. Those individuals and organizations that are concerned with controlling and eliminating TB face formidable challenges that they must consider when developing strategies for TB training and education. These include the global nature of the epidemic; the variability of incidence from community to community; the increasing proportion of TB cases among foreign-born or disadvantaged populations; the growing importance of culturally competent approaches to TB outreach, screening, and treatment; and changes in the healthcare infrastructure.

Key Results of the Strategic Plan to Date. The Strategic Plan has had significant positive impacts on TB training and education. It has increased awareness of issues, needs,

and possible solutions, and has created a synergy among groups concerned with TB training and education. This has led to new partnerships being forged, pilot projects and initiatives being launched, and innovative programs, materials, and tools being developed and made more widely available.

Among the notable projects that have arisen to fulfill the needs described in the original Strategic Plan, four will be key in planning the future of TB training and education. The first project is the development of the *TB Education and Training Resource Website*, a searchable online database of materials and resources for TB education, training, and public awareness. The CDC regularly updates the *Resource Website* and intends that it be the most robust and comprehensive catalogue available for such materials. The second project is the TB Education and Training Network (TB ETN), a networking initiative that CDC instituted to facilitate communication and collaboration among TB professionals. The third is TB Educate, an electronic listserv where

subscribers can exchange information about TB education and training issues. The fourth is this Strategic Plan itself, which defines mutual goals and strategic objectives. (For more information, see Attachment C.)

TB Training and Education Issues.

Planners considered a number of key challenges and issues in crafting strategic objectives for 2004–2008. While the Strategic Plan has had positive impacts in many of these areas, it is important to move forward to address the continuing concerns:

▶ ***Recognition of the need for training.***

Persons and organizations for which TB control is not a primary mission do not always view TB training and education as important. However, healthcare and other professionals, especially those working in high-incidence areas or with high-risk patient populations, need appropriate TB-related knowledge and skills. Advocacy efforts are needed to maintain TB training and education as a priority.

▶ ***Collaboration, coordination, and communication.*** Collaborative partnerships should be further encouraged among agencies and organizations that provide TB education and training, as such alliances enable groups to optimize resources and increase their reach.

▶ ***Targeted training.*** Curricula and training materials should be focused and targeted very specifically to the needs and roles of the particular audience receiving the training.

▶ ***Core competencies and training standards.*** Core competencies should be defined for particular job categories to ensure that training recipients will acquire an appropriate level of knowledge about TB. Both the content of the training and the quality of the delivery should meet suitable standards.

▶ ***Education and training of students of medicine, nursing, and allied health professions.*** Schools preparing students for healthcare careers should be encouraged to integrate scientific, clinical, and public health elements of TB into their curricula. This will elevate the status of TB in professional education and create intellectual interest in TB among students.

▶ ***Involvement of providers in related areas.*** It is important to train providers in non-TB specialty areas who work with populations at high risk for TB infection and disease, such as substance abusers, individuals with HIV/AIDS, homeless persons, and foreign-born individuals.

▶ ***Cultural competency.*** TB training and education programs need to be culturally and linguistically appropriate if providers are to interact effectively with members of many of the groups at high risk for TB.

▶ ***Training materials and resources.*** Excellent TB training and education resources exist. While there are gaps, awareness and accessibility are greater issues than supply. The CDC’s *TB Education and Training Resource Website* and other mechanisms that facilitate development, sharing, and use of

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information and materials should be sustained and promoted.

► ***Training methods and technologies.***

New technologies, including the Internet, are creating unprecedented opportunities for distance learning, innovative training techniques, and the exchange of information and resources. While capitalizing on these potentials, training developers should design flexible computer-based training programs to account for differences in jurisdictions’ needs and individuals’ learning styles.

► ***Need for ongoing effort.*** Effective TB training and education is not a one-shot effort, but must be a continuing enterprise. For organizations, personnel turnover creates

ongoing training needs, while individuals need regular updating of information and enhancement of skills.

► ***Need for funding.*** Jurisdictions and organizations frequently lack the resources to provide adequate training. There is a critical need to develop stable funding sources to ensure sufficient resources for developing, distributing, and providing access to training programs and resources.

► ***International cooperation.*** The U.S. should build and sustain collaborative efforts with global partners and take an active role in international TB training and education activities.

OVERVIEW OF THE MISSION, GOALS, AND STRATEGIC OBJECTIVES

THE MISSION STATEMENT AND FIVE-YEAR goals are presented on the first page of this document and discussed in detail in Section III. The planners for 2004–2008 reaffirmed the mission and goals of the original Strategic Plan.

The mission statement provides a succinct declaration of the Strategic Plan’s purpose—the reason why it was developed and its intended result. “Promotes” and “guides” are the key words. The goals are broad statements of intent that define what accomplishments are necessary to carry out the

mission. The Strategic Plan calls for a nationwide endeavor to:

- Expand current efforts through greater collaboration and coordination among agencies and organizations involved in TB training and education
- Advocate for the widespread distribution of training resources, extending their reach to all individuals who have direct or indirect responsibilities for, or opportunities to contribute to, TB care, treatment, and control

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- Promulgate efforts by agencies and organizations to set appropriate standards for TB training and education efforts, assess training needs and accomplishments, and achieve the levels of knowledge, skills, and practice needed to control and eliminate TB
 - Encourage the continuing development of curricular, informational, and financial resources for TB training and education
4. Cultural competency
 5. Materials for TB training and education
 6. TB-dedicated networks for training and education staff
 7. Full funding and implementation of the Strategic Plan
 8. Coordinated U.S.-based efforts for international TB training and education.

The strategic objectives are specific steps to take toward the accomplishment of the Strategic Plan's goals. The planners have selected these objectives as reasonable and feasible priorities for the next five years. The objectives offer strategies for achieving progress in eight broad areas:

1. TB education for students
2. TB core competencies
3. TB training opportunities

The strategic objectives are presented in detail in the table that begins on page 43. By intention, the descriptions of the strategic objectives do not specify who will do what. Instead, they describe a desired outcome and identify the types of organizations that need to be engaged if the strategic objective is to be achieved. We urge all organizations involved in TB training and education to make a commitment and take action that will lead to the achievement of the Strategic Plan's strategic objectives and goals.

HOW YOU AND YOUR ORGANIZATION CAN PARTICIPATE IN IMPLEMENTING THE NATIONAL STRATEGIC PLAN FOR TB TRAINING AND EDUCATION

THE *NATIONAL STRATEGIC PLAN FOR TB Training and Education* outlines a vision that can only be realized through the voluntary engagement of key stakeholders. A variety of local, state, and national agencies and organizations must work in concert in order to develop and ensure the ongoing delivery of appropriate TB training and education for healthcare providers.

The success of the Strategic Plan depends on the commitment and collaboration of producers of materials and programs for TB training and education; groups that are

consumers of these programs and materials (that is, groups that provide opportunities for TB training and education to staff and others); and funders that provide essential financial and policy support.

Your involvement and your organization's involvement are crucial to making TB training and education a pillar of TB control and elimination. We encourage you to participate by taking the steps listed below, each of which relates to one or more of the strategic objectives for 2004–2008.

National TB Agencies

- Endorse the Strategic Plan
- Work with national agencies that represent key target audiences to define core competencies
- Recommend endorsement and implementation of the Strategic Plan to other key organizations

- Work with TB controllers to promote delivery of TB training and education to their staff and other appropriate audiences

National TB Training and Education Agencies

- Endorse the Strategic Plan

How You and Your Organization Can Participate

- Recommend endorsement and implementation of the Strategic Plan to other key organizations
- Work with national agencies that represent or influence key target audiences to:
 - Define core competencies for their constituencies
 - Identify appropriate TB training and education materials
 - Develop appropriate TB training and education materials if none exist
 - Promote use of TB training and education materials to regional and local organizations that represent or influence their constituencies
 - Regularly include TB training and education materials in their annual conferences or meetings
- Encourage staff to join TB ETN and the TB Educate Listserv

National Organizations that Represent or Influence Key Target Audiences (Professional Societies, Managed Care Organizations, Advocacy Groups, Etc.)

- Endorse the Strategic Plan
- Recommend endorsement and implementation of the Strategic Plan to other key organizations
- Work with national TB organizations to:
 - Define core competencies for your constituency
 - Identify appropriate TB training and education materials

- Develop appropriate TB training and education materials if none exist
- Promote TB training and education at the regional, local, and individual level
- Regularly include TB training and education in your annual conferences or meetings

National Associations of Medical Schools, Nursing Schools, and Schools for Allied Health Professionals

- Work with national TB organizations to develop standard TB curricula and materials
- Promote use of the TB curricula and materials to individual schools

National Agencies Responsible for Board Certification and Licensure Examinations for Appropriate Medical Specialties

- Regularly include TB topics in exam questions and study materials

State and Local TB Controllers

- Endorse the Strategic Plan
- Recommend endorsement and implementation of the Strategic Plan to other key organizations
- Check the CDC *Tuberculosis Education and Training Resource Website* before developing new materials, to ascertain that materials that serve your purpose do not already exist

How You and Your Organization Can Participate

- Submit new materials that you create to the CDC *Tuberculosis Education and Training Resource Website*
- Dedicate local staff time to delivering TB training and education to selected target audiences
- Encourage staff to join TB ETN and the TB Educate Listserv

All Agencies Producing Materials

- Check the CDC *Tuberculosis Education and Training Resource Website* before developing new materials, to ascertain that materials that serve your purpose do not already exist
- Submit new materials that you create to the CDC *Tuberculosis Education and Training Resource Website*
- Encourage staff to join TB ETN and the TB Educate Listserv

All Individuals Delivering TB Training and Education to Staff

- Check the CDC *Tuberculosis Education and Training Resource Website* before developing new materials, to ascertain that materials to serve your purpose do not already exist
- Dedicate time to delivering TB training and education to selected target audiences
- Join TB ETN and the TB Educate Listserv

Funding Agencies

- Endorse the Strategic Plan
- Sustain existing TB training and education activities, and expand the base to include new endeavors based on this Strategic Plan
- Set priorities that encompass the accomplishment of the strategic objectives set forth in this Strategic Plan
- Support a dedicated secretariat for the Strategic Plan, so that the Implementation Committee can continue to recruit and organize stakeholders to achieve the goals

I. DEVELOPING THE STRATEGIC PLAN

WHY THE STRATEGIC PLAN WAS UNDERTAKEN

THE WORLDWIDE TUBERCULOSIS (TB) epidemic is a major global health crisis. In the United States, the problem is less severe, but the resurgence of TB in this country between the mid-1980s and the early 1990s demonstrated that the U.S. continues to be vulnerable. It also underscored the importance of maintaining vigilance against TB, especially at a time when there is strong competition for diminishing healthcare resources.

Yet many healthcare and social service providers working with individuals who have or are at risk for TB know little about this disease. This makes comprehensive TB training and education an essential strategy to combat TB.

A broadly based group of TB experts has collaborated to develop the *National Strategic Plan for Tuberculosis Training and Education*. The Strategic Plan provides a blueprint for building a strong, coordinated, and systematic approach to TB training and education—an approach that addresses all levels of need and offers guidance, materials, and information

that organizations can tailor to fit their own circumstances.

After a year-long planning effort, the original Strategic Plan was published in January 1999. It was intended to guide the development of TB training and education for the subsequent five years, 1999–2003. This timeframe was selected because it was short enough that needs and trends could be reasonably projected, yet offered sufficient time to mobilize action and achieve significant progress. The Strategic Plan set forth a mission statement and defined five goals essential carrying out that mission. A Strategic Plan Implementation Committee was convened to monitor progress and maintain the commitment of the participating organizations.

Considerable progress has been made in the period covered by the original Strategic Plan. In 2003, the planners revisited the plan to assess the achievements, identify new and ongoing challenges, and formulate strategies to carry the plan forward for the next five years. This new version presents an updated and

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renewed Strategic Plan for the years 2004–2008.

■ **The Purpose of the Plan**

The Strategic Plan was created because its developers recognized that TB training and education programs are fundamentally important if TB is to be controlled and eliminated. Yet efforts in this area have often been fragmented, while resources to support or expand them are limited and likely to decline. The coalition of experts came together to assess the status of TB training and education, identify successful efforts and areas of highest need, and devise a strategy for the effective coordination of resources. The purposes of the Strategic Plan are to:

- Foster collaboration and linkages among U.S. and global organizations that conduct TB training and education or have an interest in TB issues
- Promote an awareness of TB issues among organizations whose constituencies include population groups at high risk for TB
- Encourage TB training and education efforts that are targeted to the specific needs of various providers and communities
- Identify, catalogue, and promote the use of available resources
- Provide a planning model that can be adapted by agencies and institutions at local, state, regional, national, and

international levels as they develop TB training and education programs

The planners focused on training and education for healthcare providers, using that term in the broadest possible sense. In this document, the term “providers” encompasses administrators, clerical staff, clinicians, program managers, counselors, disease investigators, engineers, health educators, industrial hygienists, laboratorians, nurses, nurse practitioners, outreach workers, physicians, physician assistants, respiratory therapists, social workers, TB case registry staff, volunteers, and others who work with patients, provide control services, or make policy decisions concerning TB.

The process by which TB training and education is developed and delivered is very complex and has no centralized system. Programs and materials may be produced by national, state, or local agencies. Training may be delivered at the national, regional, or local level. The audiences to whom the training is directed work in a wide variety of professions and settings. While there are agencies dedicated to the development of TB training and education, other organizations—including federal agencies, national health organizations, state and big-city departments of health, academic institutions, and professional societies—are important national sources of materials, strategies, and guidelines. The stakeholders are too varied and numerous for any one of them to regularly know the activities and plans of the others. This is

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especially true for stakeholders whose missions extend beyond TB.

The Strategic Plan is not meant to replace existing programs or philosophies. The intent is to engage these organizations in a comprehensive, coordinated, and sustained effort that is targeted to the specific needs of various providers and communities. We hope that the Strategic Plan will continue to encourage greater collaboration among local, national, and global partners who have a stake in TB control and elimination efforts. The results should include the more effective targeting of TB training and education resources and greater accessibility to them.

■ **Intended Audiences and Desired Outcomes**

According to its mission, the Strategic Plan promotes and guides training and education efforts to control and eliminate tuberculosis. The plan sets a course of direction for the years 2004–2008 that can be adopted as strategic objectives by training and education stakeholders at local, state, regional, and national levels.

The audience for the Strategic Plan consists of individuals who directly deliver TB training and education to providers, as well as individuals who represent agencies or organizations in the U.S. and, as appropriate, in other countries, that are involved in TB training and education for public-sector and private-sector providers. Such groups include:

- National agencies or organizations that represent or influence key target audiences
- National TB training and education agencies
- National TB agencies
- National associations representing schools that train physicians, nurses, and other healthcare professionals
- National agencies involved with examinations for healthcare-related board certifications and licensures
- Agencies that produce TB training and education materials
- State and big-city TB controllers and their staff
- Local health departments
- Individuals who deliver TB training and education

Their involvement may be as producers, consumers, or funders of TB training and education. Our hope is that as a result of the inspiration and guidance of the Strategic Plan, the following outcomes will be achieved:

- *Producers.* Organizations that produce and deliver TB training and education materials and programs will increase their coordination and collaboration, leading to an enhanced supply of and greater access to appropriate materials, and more opportunities for key audiences to receive TB training and education

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- *Consumers.* Agencies and organizations that have TB control responsibilities, educate healthcare providers, or work with at-risk populations will make increased use of TB training and education, leading to improved capabilities of their students and staff
- *Funders.* Funding agencies will maintain TB training and education as a high priority, leading to stable funding for this important effort

Please join us in implementing the Strategic Plan. The mission, goals, and strategic objectives for the next five years are described in Section III. The objectives include details of the outcomes that we hope to

see achieved, strategies for accomplishing these aims, and organizations whose participation will be instrumental to the implementation of each component of the Strategic Plan.

If you are affiliated with an organization in one of the categories listed above, see the strategic objectives in Part III and the section titled “How You and Your Organization Can Participate in Implementing the National Strategic Plan for TB Training and Education” at the front of this document to learn how you can assist in developing and promoting the systematic approach to TB training and education that the Strategic Plan envisions.

THE INITIAL PLANNING PROCESS

THE ORIGINAL STRATEGIC PLAN WAS THE result of a year-long, broadly inclusive collaboration by institutions, agencies, and individuals representing the full spectrum of TB care, control, and prevention efforts.

■ Participants

Participants included representatives of national, state, and big city TB control programs; private-sector and public-sector providers; research and educational institutions; correctional facilities; and international organizations involved in TB control. More than 160 individuals contributed

their expertise, perspectives, and insights during the research and planning phases by participating in needs assessment activities, workgroups, and the Steering and Advisory Committees.

■ Organization of the Planning Process

At the suggestion of the three CDC-funded Model Centers—the Francis J. Curry National Tuberculosis Center (CNTC), the New Jersey Medical School National Tuberculosis Center, and the Charles P. Felton National Tuberculosis Center at Harlem Hospital—the planning process was initiated by the Division

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of Tuberculosis Elimination (DTBE) of the Centers for Disease Control and Prevention (CDC). The CDC recognized that excellent work was being done on many fronts, but that much of it was being accomplished in isolation and that training gaps and barriers persisted. To address this situation, stakeholders were invited to participate in the crafting of an independent Strategic Plan that could help them to organize, improve, and promote their individual TB training and education activities and to work in concert to address unmet needs. The Model Centers, working with the CDC–DTBE, coordinated the planning process. Through CNTC, CDC funded a dedicated secretariat to provide the necessary logistical and administrative support.

A Steering Committee, comprising individuals from the lead organizations, guided the planning process with consultation from an Advisory Committee of national TB experts. The CNTC took the lead in providing administrative support.

■ **Development of the Information Base for the Strategic Plan**

The Steering Committee conducted substantial research to ensure that the Strategic Plan would be based on the best available knowledge about issues, concerns, and achievements related to TB training and education.

▶ **Needs Assessment.** A detailed, three-part needs assessment was conducted to help

planners identify resources and pinpoint the key issues and concerns to be addressed. The needs assessment included a written survey of TB controllers and nurse consultants; a focus group of TB nurse consultants; and a series of structured interviews with TB controllers, nurse consultants, and public health advisors.

▶ **Resource Inventory.** To help planners become aware of existing TB training and education resources, the CNTC compiled an inventory of more than 540 resources, representing more than 140 jurisdictions, agencies, and organizations.

▶ **Workgroups.** Six workgroups were formed to develop position papers with background information on topics or populations central to TB training and education efforts. The workgroups identified the resources, needs, and barriers that pertained to their target groups, and recommended goals and objectives to be considered for inclusion in the Strategic Plan. The chairs and some members participated in the Strategic Planning Summit. The role of the workgroups is discussed in detail below.

■ **The Strategic Planning Summit**

In October 1998, 46 representatives of the participating organizations attended a Strategic Planning Summit in Oakland, California. The purpose of the meeting was to integrate the findings of the needs analysis and the workgroups into a comprehensive strategy for addressing TB training and education needs

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and issues in the United States. The planners established the framework for the Strategic Plan, including its mission and goals, and an initial set of strategic objectives. The resulting plan presented their consensus on the needs and priorities for TB training and education, and set a directional course for a five-year period: 1999–2003.

■ **Publication and Distribution of the Strategic Plan**

The *National Strategic Plan for TB Training and Education* was published in a print version in January 1999. More than 700 copies have been distributed to TB-related agencies and organizations, as well as to other stakeholders. The Strategic Plan has also been made available on the Internet.

The feedback has been extremely positive. Many recipients have recognized the Strategic Plan as an important endeavor that will lead to substantial improvements in programs and resources for TB training and education. We welcome additional responses and suggestions.

A significant tribute to the value of the Strategic Plan came from the Institute of Medicine (IOM). In its report, *Ending Neglect: The Elimination of Tuberculosis in the United States*, published in 2000, the IOM recommended that steps be taken to promote a well trained medical (in the broadest sense) workforce and an educated public. It noted that full funding of the Strategic Plan, which contains the blueprint that addresses the training and educational needs for TB control, should be one of those steps.²

THE ROLE OF THE WORKGROUPS

AS A CORE PART OF THE PLANNING process, six workgroups were convened to examine TB training and education issues as they pertained to providers serving populations or groups central to TB control efforts. The responsibilities of the workgroups were to:

- Develop background information on their topics, including relevant epidemiological data and historical perspective
- Profile the target audiences within their area of concern by identifying the job categories in the provider population that would be appropriate recipients of TB education and training
- Define the problems and issues relevant to TB training and education for the target audiences under discussion
- Identify the target audiences' training needs, as well as the barriers that impede efforts to meet those needs
- Identify programs and organizations that have been successful in reaching the target audiences, as well as available TB training

and education resources that address the needs of the population in question

Each workgroup developed a position paper to summarize its findings, provide the summit participants with relevant background information and perspectives, and recommend goals and objectives to be considered for inclusion in the Strategic Plan. The position papers informed and guided the planners as they developed the original plan. As described below, the workgroups again played a role in the crafting of the Strategic Plan for 2004–2008. The six workgroups are:

■ **Workgroup 1. Private Sector, Managed Care, and Provider Education**

This workgroup considered issues of TB training and education for private-sector providers, healthcare workers, and administrators in managed care organizations, as well as nursing and medical students. Changing institutional and organizational practices in the private sector are exerting a direct and powerful influence on the ways physicians practice medicine. Private-sector organizations have increasing responsibility for the care and treatment of patients who have or are at high risk for *M. tuberculosis* infection and TB disease. Although significant national and state training resources have been developed, they have not focused on these groups and their particular circumstances.

■ **Workgroup 2. Public Health Sector**

In the U.S., public health departments are legally charged with providing TB control in their communities. They are generally responsible for surveillance, contact follow-up, outreach programs, training and education, and the monitoring and evaluation of TB case management. Through public hospitals and clinics, they also provide direct care and treatment of TB for certain segments of the community’s population, often those most vulnerable to infection. Public health workers are expected to maintain high standards of quality and high levels of expertise. However, there are impediments to achieving this. The workgroup dealt with the varied needs and responsibilities of public health providers, and with strategies for effectively targeting TB training and education for this sector.

■ **Workgroup 3. Correctional and Other Detention Facilities**

Jails, prisons, and other detention centers are high-risk settings for TB transmission because they are congregate, close-quartered living situations and because their inmates frequently have risk factors for infection. Health care in correctional facilities has a significant impact on public health, and these institutions provide a unique opportunity for cost-effective interventions to prevent and control TB in a high-risk population. Properly focused, these interventions can significantly improve the health status of the larger community, whereas poor correctional health

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care can harm the larger community's public and economic health. The workgroup examined the training issues relating to TB control in correctional facilities.

■ **Workgroup 4. Providers Serving High-Risk Populations**

For the purposes of the Strategic Plan, the category of high-risk populations was defined as including the homeless, substance abusers, and persons living with HIV/AIDS. These groups provide major challenges for TB treatment and control. Not only are they at greater risk than the general population of contracting *M. tuberculosis* infection and developing TB disease, but their social situations and co-morbidities greatly complicate the task of preventing and treating TB. The target of this workgroup was the healthcare providers and social service professionals who work with these groups, as it is crucial that they be aware of the groups' TB risk and knowledgeable about the care and control of the disease.

■ **Workgroup 5. Providers Serving Foreign-Born Populations, and International Medical Graduates**

These providers need to be targeted for TB training and education because foreign-born persons have a higher risk of TB than U.S.-born persons. Since 1986, the proportion of U.S. TB cases reported among foreign-born persons has steadily increased, a trend that is

expected to continue. Although many issues related to TB are similar for all foreign-born groups, regardless of their country of origin, the groups are highly diverse in language, culture, socioeconomic circumstances, and traditions and attitudes regarding health care. Interventions aimed at them must be culturally appropriate, and cultural competency is an issue to be addressed in TB training and education for providers who serve them. International medical graduates (IMGs) were included in this workgroup's purview because similar cultural considerations apply when addressing their training needs; because a substantial percentage of IMGs practice in multicultural urban areas where large numbers of immigrants reside; and because TB control practices may be different in the countries where they received their medical education.

■ **Workgroup 6. International Liaison**

TB training and education efforts in the U.S. must be considered in the context of the global scope of the TB epidemic. In many developing countries, where the incidence of TB is highest, training and education opportunities are limited, and there is great need for collaboration and the sharing of training resources among organizations involved in international TB control. This workgroup provided an international perspective in which to frame a TB training and education plan for the U.S.

IMPLEMENTATION OF THE STRATEGIC PLAN

FOR ANY STRATEGIC PLAN TO SUCCEED, A vital requirement is that a system be put in place to monitor and evaluate the plan's progress, to track the situations that the plan addresses, and to adjust the plan as needed should circumstances change. To ensure that this Strategic Plan could be a dynamic program for success, an implementation process was established after publication of the first Strategic Plan.

■ The Strategic Plan Implementation Committee

The Strategic Plan Implementation Committee is charged with promoting implementation of the goals and objectives, maintaining the commitment of participating organizations, and monitoring the progress of the Strategic Plan. The 15 Committee members

represent TB-related agencies and organizations from around the U.S., and include chairs or members from the six workgroups. Throughout the Strategic Plan's initial five years, the Implementation Committee met via regular conference calls and annual follow-up meetings.

■ Strategic Plan Follow-Up Meetings

Members of the Implementation Committee and invited representatives of key national and international agencies met again in July 1999, June 2000, August 2001, and October 2002 for Strategic Plan Follow-up Meetings. The purpose of these meetings was to review progress, evaluate accomplishments, address continuing challenges, identify changing circumstances that affect TB training and education, and decide upon next steps.

RENEWING THE STRATEGIC PLAN FOR THE NEXT FIVE YEARS

CREATING THE ORIGINAL STRATEGIC PLAN was like drawing a map, with the understanding that it would be regularly redrawn and updated to reflect recent accomplishments, changing needs, and fresh ideas. The Strategic Plan is a continuing and

dynamic process, and this document marks a new cycle for it.

The original Strategic Plan covered the years 1999–2003. During that period, it demonstrated that it was an important vehicle for:

Developing the Strategic Plan

- Examining TB training and education from a comprehensive, big-picture perspective
- Advocating the maintenance of TB training and education as a priority for funders and policy makers
- Raising the profile of TB training and education as an essential element of TB control and elimination
- Identifying needs, monitoring developments, and tracking progress
- Encouraging the development of new materials, resources, and initiatives
- Facilitating coordination, collaboration, and information sharing among groups concerned with TB training and education

At the Strategic Plan Follow-Up Meeting in October 2002, the planners reaffirmed their commitment to the mission and goals, and laid the groundwork for a process to renew the Strategic Plan for another five years. There was a strong consensus that the Strategic Plan still needed, and that steps should be taken to ensure a systematized and sustainable planning and implementation process.

■ **How the 2004–2008 Strategic Plan Was Developed**

► ***Coordination of the Planning Process.***

The Implementation Committee, which guided the Strategic Plan for the past five years, was reconstituted as the Strategic Plan Steering Committee to direct the development of the 2004–2008 Strategic Plan. Once again, the CDC funded the Francis J. Curry National

Tuberculosis Center to provide the necessary logistical and administrative support.

► ***Workgroups and Position Papers.***

The six workgroups were fundamental to the development of the original Strategic Plan, and planners agreed that the categories of providers addressed by the workgroups continue to be key target audiences for TB training and education. Therefore, the workgroups were reconvened with new co-chairs for the current planning cycle. Members met through monthly conference calls to discuss TB training and education accomplishments and issues related to their particular group. The workgroups reviewed and updated the position papers in light of developments occurring since the original Strategic Plan was created. The revised position papers are appended to this document. The workgroups also recommended new strategies and objectives for the next five years, which have been incorporated into the strategic objectives presented in Section III.

► ***National TB Training and Education Survey.*** In 2003 the CNTC, with guidance from the Steering Committee, conducted a national survey on TB training and education trends and needs. This survey builds on the Strategic Plan needs assessment undertaken in 1998 and a survey of TB controllers sponsored by the three Model Centers in 2001. The 2003 survey was fielded as a brief, web-based questionnaire. Participants included members of the National Tuberculosis Controllers Association, the National Tuberculosis Nurse

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Consultants Coalition, the TB Educate Listserv, and the TB Education and Training Network (TB ETN). Survey responses were received from 209 individuals who identified themselves as directly responsible for providing or arranging staff training and education.

The survey provided a profile of TB training and education efforts—availability and frequency of training sessions; formats and methodologies used; topics covered; professional categories of individuals who receive training; professional categories that are not receiving adequate training; and organizations most often used by trainers as resources. The profile suggests that since 1998, the frequency of TB trainings and events has decreased, even though the respondents believe that persons in many targeted professional categories are not being reached. Attachment B presents a summary of the survey results.

► ***TB Education and Training Resource Guide.*** An inventory of TB training and education resources was developed for the original Strategic Plan and is one of its enduring accomplishments. This catalogue led to a new edition of the *TB Education and Training Resource Guide*, which is maintained by CDC. (See Attachment C for a more detailed description of the *Resource Guide* and the *TB Education and Training Resource Website*.) The inventory was a valuable resource to planners as they assessed the current state of TB training and education and

considered what strategies would be most effective for 2004–2008.

► ***Collaboration and Commitment.*** The Strategic Plan for the new five-year cycle developed through a year-long planning process. It incorporates the best thinking of more than 50 TB experts from around the country, who generously and unstintingly shared their time, energy, knowledge, and ideas. As with the original Strategic Plan, the planners, who are listed in Attachment A, represented a cross section of the agencies, organizations, and professional disciplines that are stakeholders in TB training and education. Their collaborative effort is intended to carry the Strategic Plan forward and ensure that TB training and education will continue to be a high priority for policy makers, funders, educators, and service-delivery programs that have a stake in the elimination and control of TB.

■ **Ensuring a Bright Future for TB Training and Education**

The renewed and updated *National Strategic Plan for TB Training and Education* acknowledges the accomplishments of the past five years and the challenges that continue, and it sets a directional course for the next five years. Much work remains to be done if we are to succeed in building the strong, coordinated, and systematic framework for TB training and education envisioned in the Strategic Plan. For 2004–2008, we have focused on formulating strategic objectives that define the outcomes

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we would like to see achieved, and set forth clear, effective, and realistic strategies for attaining those results.

We hope that this version of the Strategic Plan will play an even more powerful role in guiding TB-related groups as they plan programs, develop materials, and carry out training and education activities. Strong commitment and focused action on the part of many organizations and individuals are needed to fulfill the potential of TB training and education as an effective strategy for TB control. We ask for the involvement and support of all stakeholders as we pursue the goals of the Strategic Plan. Please see “How You and Your Organization Can Participate in Implementing the National Strategic Plan for TB Training and Education” on page 7 to learn about steps you can take.

We also call upon funders to provide continued support for an active implementation system to ensure the success of the Strategic Plan over the next five years. The Strategic Plan is a collaborative effort by a diverse and dispersed group of stakeholders; for many participants, TB is not their primary focus or responsibility. Such an endeavor requires the thoughtful guidance and leadership of a national Implementation Committee. The Implementation Committee in turn needs to be able to rely on consistent administrative support to coordinate its activities, organize the distribution and promotion of the Strategic Plan, engage groups for whom TB is a marginal concern, monitor and report progress, and assist the Implementation Committee in maintaining the commitment of all stakeholders. We urge full funding of the Strategic Plan as recommended by IOM in *Ending Neglect: The Elimination of Tuberculosis in the United States*.

II. TB TRAINING AND EDUCATION: CHALLENGES, ACCOMPLISHMENTS, AND ISSUES

BACKGROUND: DEFINING THE PROBLEM

ONCE A LEADING CAUSE OF DEATH IN THE U.S., tuberculosis initially began to diminish as a public health threat with improvements in living conditions in the early 20th century. Subsequently, in the mid-20th century, the development of effective anti-tuberculosis drugs accelerated the decline. TB rates and cases declined every year from the early 1950s through the next three decades. Many healthcare providers and policy makers, as well as the public at large, perceived TB in the U.S. to be under control. Much of the public health infrastructure that dealt with the disease was dismantled, as TB hospitals closed and jurisdictions redirected resources that had been allocated for TB prevention and control to other needs.

But in the mid-1980s TB came back with a vengeance. The number of cases surged, increasing by 20 percent from 1985 to 1992. Moreover, new multidrug-resistant strains of *Mycobacterium tuberculosis* emerged, greatly complicating effective control and treatment.

In 1989, *A Strategic Plan for the Elimination of Tuberculosis for the U.S.*³ was published by the CDC/Department of Health and Human Services' Advisory Committee (now Council) for Elimination of Tuberculosis (ACET). This document charged all TB control programs with the mission of eliminating the disease in the U.S. by the year 2010 and set out strategies for accomplishing this aim. From 1992 to 1994, Congress substantially increased funding to re-establish the public health infrastructure and bring TB back under control. Thousands of additional public health workers were hired and trained to supplement the existing TB workforce. Nationwide, emphasis was placed on improving TB clinics and laboratories, and strengthening capabilities for TB surveillance, treatment, patient follow-up, contact investigation, and screening and treatment of latent TB infection (LTBI).⁴ In 1995, ACET published *Essential Components of a Tuberculosis Prevention and Control Program*⁵ to provide a model for TB control programs, establish national standards for evaluating them, and describe the essential

program components necessary to achieve elimination of TB in the U.S.

The increase in interest and resources has yielded positive results. TB cases peaked in 1992, and have declined every year since then. In 2002, the TB case rate (number of cases per 100,000 population) fell to 5.2 cases per 100,000 population, a decrease of nearly 50 percent from the 1992 high.⁶ As the incidence of TB declined, there has been increased emphasis on preventing outbreaks of the disease by identifying and treating persons who have LTBI. With effective LTBI

treatment, these individuals will not progress to active disease; by not progressing to active disease, they will not transmit the infection to others.

As a result of recent successes, TB funding is leveling off and even decreasing. But despite the gains, TB remains a serious public health concern. Without vigilance, sustained efforts, and resources, it is likely that the progress made in the 1990s will be reversed and that rates of TB cases and deaths will climb again.

CHALLENGES FACED IN COMBATTING TB

ORGANIZATIONS AND INDIVIDUALS concerned with controlling and eliminating TB face formidable challenges. They include the following:

■ **The Global Nature of the Epidemic⁷**

Beyond U.S. borders, TB is a cause for grave concern. Recognizing that the disease is one of the most neglected global health problems and that TB is epidemic in many countries, the World Health Organization (WHO) declared TB to be a global health emergency in 1993. TB is believed to be present in every nation, and WHO estimates that one third of the world's population is infected with *M. tuberculosis*.⁸ Although most of those infected do not develop disease, in 1996 there were 8 million new cases of TB—

a 13 percent increase over 1993—and 3 million deaths. Worldwide, TB is the leading cause of death due to a single infectious agent. WHO projects that between now and 2020, nearly one billion more people will be newly infected, 200 million people will get sick, and 70 million will die from TB.

Developing countries account for 95 percent of TB cases and 98 percent of TB deaths. In these nations, TB causes more than one-quarter of all preventable adult deaths, even though it is a preventable and treatable condition.

Although the picture is far brighter in the U.S., the struggle against TB in this country must be viewed in an international context. The constant movement of people around the world ensures that TB does not respect

borders, and that a country-by-country approach to TB control will not be sufficient. The number of refugees and displaced people in the world has increased ninefold in 20 years, and those infected with TB may be difficult to identify and treat. Thus, the U.S. needs to be aware of, and contribute to, international TB control efforts.

■ **Variability of Incidence from Community to Community**

The incidence of TB varies greatly among jurisdictions in the U.S. In 2002, seven states (California, Florida, Georgia, Illinois, New Jersey, New York, and Texas) reported 60 percent of all TB cases; consistent with the national pattern, the number of cases reported from each of these states has decreased substantially since 1992. These states ranked highest in terms of the number of cases and had case rates ranging from 5.4 to 9.0 per 100,000 population. However, two jurisdictions—Hawaii and the District of Columbia—reported even higher case rates, and five additional states had case rates above the national average of 5.2.

In addition, TB is largely an urban disease. In 2002, five cities—Chicago, Houston, Los Angeles, New York City, and Washington, DC—and their environs accounted for 25 percent of U.S. cases. But even among the nation's large cities (metropolitan statistical areas with populations of 500,000 or more), there is great variation in TB incidence, with case rates ranging from 0.9 to 15.4. The 12 cities with case rates above 10.0 are all located

on the Atlantic or Pacific coasts or the Mexican border; however, a number of other similarly situated cities have significantly lower case rates.⁹

As rates decline, most physicians are unlikely to encounter an actual case of TB more than once or twice during their careers. Even in areas of high TB incidence, only physicians who care for the medically indigent, the socially disadvantaged, or immigrant groups from high-incidence countries, are likely to encounter a case of TB. This raises the possibility that when TB initially occurs in a community, the diagnosis will be missed or delayed, increasing the risk that the disease will spread. It is therefore vitally important that clinicians develop and maintain skills in diagnosing TB and LTBI, and that TB control programs remain a priority even in jurisdictions where the disease rarely occurs.

The portions of the U.S. population most likely to have *M. tuberculosis* infection and disease are those individuals who fall into one or more of the following categories: those who live in an urban area, are poor, have substance abuse problems, have HIV infection, are incarcerated, are homeless, or are foreign born. With the possible exception of urban residence, each of these categories represents a problem that can compound the difficulty of managing TB cases by making it more difficult for individuals to gain access to healthcare services or to complete the required course of TB therapy.

► **Foreign-born individuals.** Persons with TB are increasingly likely to be foreign born (especially from Latin America, Southeast Asia, and Africa) and to speak English as a second language, if at all. The proportion of TB cases among foreign-born persons has increased steadily since the mid-1980s, from 22 percent in 1986 to 27 percent in the 1992, the year the incidence peaked. Although the total number of cases in the U.S. has decreased over the last decade, that decline has basically occurred among U.S.-born persons, while the number of foreign-born cases has held constant. In 2002, 51 percent of TB cases in the U.S. occurred among foreign-born persons.

The comparatively high incidence of TB among the foreign-born has been largely due to immigration from countries in Asia and the Americas, where TB rates are five to twenty times greater than U.S. rates. In 2002, 62 percent of foreign-born persons diagnosed with TB came from seven countries (Mexico, Philippines, Vietnam, India, China, Haiti, and Korea). For all immigrant groups, the disease risk appears highest in the first years after arrival in the U.S. Most cases are likely the result of reactivation of remotely acquired infection, although some transmission is probably occurring in the U.S. As expected, states with the most immigrants report the largest number of foreign-born TB cases.

► **Homeless persons.** Homeless persons have an increased risk of TB infection due to conditions created by homelessness, such as living in overcrowded shelters. Since 1981,

skin test positivity rates in New York City shelters and drop-in centers have remained consistently in the range of 50 percent. The physical structures of most shelters predispose to easy spread of infectious droplet nuclei. These inadequately ventilated and crowded buildings often house persons with high indices of alcoholism and poor nutrition, factors that have been known for decades to lead to the spread of *M. tuberculosis*. Because the lives of homeless persons are often unstable, with high mobility and poor social support, TB frequently goes undiagnosed and adhering to treatment can be a low priority. The impact of HIV infection on the homeless population is also a significant consideration.

► **Substance abusers.** Substance abuse—defined here as a maladaptive pattern of alcohol and/or drug use leading to clinically significant impairment or distress for the user—is often associated with socioeconomic factors that increase this population’s risk for TB, such as homelessness, lower economic status, poverty, and mental illness. In addition, injection drug users, many of whom are HIV infected, have an increased risk of developing TB disease after being infected with TB. The use of alcohol and other drugs can minimize the abuser’s desire or ability to utilize primary health care, thus decreasing the possibility of early intervention and treatment. The instability of many substance abusers’ lives delays diagnosis of TB and causes poor adherence to treatment. In 1992, Congress enacted a TB services mandate for all substance abuse programs that receive funding

through the Substance Abuse Prevention and Treatment (SAPT) Block Grant, requiring those programs to make TB screening, evaluation, and follow-up routinely available for clients. State laws require many alcohol and drug treatment providers to report cases of communicable disease, including TB, to local or state public health officials and to cooperate with them in client follow-up.

► ***HIV-infected individuals.*** Reports of the relationship between HIV and TB were first published in the mid-1980s. By 1987, extrapulmonary TB in persons with HIV infection was added to the CDC list of recognized AIDS opportunistic infections. In 1993, pulmonary TB associated with HIV infection was added as an AIDS-defining condition. An HIV-infected person is up to 30 times more likely to develop active TB than a person with a healthy immune system.

The majority of TB/HIV cases occur in states and cities where persons at risk for both diseases are present. The four states with the greatest incidence of TB—California, New York, Texas, and Florida—also report the highest number of AIDS cases. While nationwide statistics are not available, in jurisdictions that reported these data, the proportion of TB cases occurring in HIV-infected persons ranged from 5.0 to 52.5 percent.¹⁰ For HIV/AIDS patients, treatment of TB is more complicated because of such factors as drug interactions and patients' difficulty in adhering to multiple treatment regimens.

► ***Individuals in correctional facilities.*** Correctional facilities are high-risk environments for *M. tuberculosis* transmission. These congregate living settings typically house persons likely to have one or more of the following risk factors for TB: substance abuse, alcohol abuse, a history of homelessness, high rates of HIV infection, and poverty. Issues such as overcrowding and poor ventilation, a concern in some correctional settings, facilitate the spread of *M. tuberculosis* infection. TB control is further complicated by the variables of inmate length of stay and degree of risk, as well as the increasing number of people, both inmates and employees, who live or work in these settings. The transmission of *M. tuberculosis* in correctional facilities presents a public health problem for correctional facility employees, for inmates, and for the communities into which inmates are released and where the employees live and work.

Of those diagnosed with TB in 1997, 40 percent passed through a correctional facility that year.¹¹ Inmates with TB were on average younger and more often U.S. born than non-inmates with TB.¹² Nationwide, the rate of active TB in correctional settings is four times higher than in the general population¹³, and TB outbreaks, including the transmission of multidrug-resistant TB (MDR TB) to inmates and correctional staff in the early 1990s, have been documented in a number of communities. One of the reasons cited for the resurgence of TB from 1986 to 1992 was the transmission of

M. tuberculosis in congregate settings such as correctional facilities.¹⁴

Correctional facilities made major strides in improving the diagnosis and treatment of active TB from 1993 to 1996.¹⁵ This is reflected in the decreasing number of TB cases and case rates among inmates, and in the fact that inmates more often than non-inmates are being treated according to CDC-recommended regimens, being placed on directly observed therapy (DOT), having sputum cultures done, and having HIV test results reported.

■ **The Growing Importance of Culturally Competent Approaches to TB Outreach, Screening, and Treatment**

The diverse populations who are at high risk for TB represent many cultural groups. This can greatly compound the challenge of providing TB education, treatment, and screening, especially in jurisdictions where a multiplicity of cultural groups are represented. It has been estimated that in 30 years, 40 percent of Americans will be members of minority groups. In many jurisdictions, including cities, counties, and at least one state (California), the minority population already exceeds that of the traditional majority.

Providing health care to individuals and dealing effectively with public health concerns becomes more challenging as the number of cultural groups increases. To be effective, TB programs must address their target populations in culturally competent ways—that is, ways that take into account the cultural groups to

which patients belong or with which they identify.

Cultural groups are most often defined by their members' racial or ethnic origin. However, other kinds of groups can have distinctive cultural characteristics. Examples might include groups whose members are united by a shared language, lifestyle, socioeconomic status, religion, age, gender, sexual orientation, or physical and mental capacity.

Every cultural group has its own beliefs, traditions, and levels of knowledge regarding health and disease, and these often differ from the beliefs, traditions, and knowledge that govern the provision of health care in our society. Linguistic barriers can further impede communication. Unless mutual understanding and respect develop between patient and provider, the patient may be unable or unwilling to accept and follow medical recommendations.

There are many definitions of cultural competence. One good one is the following, which comes from the federal Health Resources and Services Administration:

[Cultural competence refers to ...] A set of attitudes, skills, behaviors, and policies that enable organizations and staff to work effectively in cross-cultural situations.

It reflects the ability to acquire and use knowledge of the health-related beliefs, attitudes and practices, and communication patterns of clients and their families to improve services,

strengthen programs, increase community participation, and close the gaps in health status among diverse population groups.

Cultural competence also focuses its attention on population-specific issues including health-related beliefs and cultural values (the socioeconomic perspective), disease prevalence (the epidemiologic perspective), and treatment efficacy (the outcome perspective).¹⁶

A culturally competent approach makes it easier to establish effective relationships with patients and helps them achieve desired outcomes by:

- *Taking into account the patient’s beliefs, attitudes, and knowledge about health, disease, and appropriate medical treatment.* In many cultures, traditions and practices regarding health care differ markedly than from those of standard Western medicine. When practitioners understand the patient’s culture, they can more easily assess the patient’s knowledge and assumptions and adapt their style, services, and patient education in ways that the patient can more readily comprehend and accept.
- *Reducing linguistic and communication barriers.* Communication issues go beyond language to include interpretation of body language, gestures, and tone of voice, which can have different meanings in different cultures.
- *Diminishing patients’ feelings of being uncomfortable, disrespected, confused, or unwelcome in the healthcare environment.* If services are provided in a place that an individual perceives as hostile, intimidating or strange, he or she will be less likely to participate in the services or adhere to the medical recommendations obtained there.
- *Allaying fears about immigration concerns.* Clients may be fearful that participation in TB screening or treatment programs may trigger problems for them with the U.S. Citizenship and Immigration Services (USCIS) or other governmental entities.
- *Lessening the social stigma of TB.* Persons with TB disease can face social isolation and ostracism in families and communities where the disease is not well understood.
- *Helping patients access the healthcare system.* Many patients from groups that are at high risk for TB encounter significant barriers when they try to gain access to or navigate through the healthcare system.
- *Involving diverse cultural groups in the community’s public health objectives.* When a cultural group feels that it is understood, appreciated, and welcome in the community as a whole, its members become stakeholders in the community, invested in outcomes that are to everyone’s benefit.

■ **Changes in the Healthcare Infrastructure**

The organizational infrastructure of health care in the U.S. underwent profound changes during the 1990s. This transformation is continuing, and has significant implications for TB treatment and control.

In the U.S., state and local health departments have legal responsibility for the prevention and control of TB in their communities. They are generally responsible for surveillance, contact follow-up, outreach programs, training and education, and the monitoring and evaluation of TB case management. In some states, TB control programs also conduct overall planning and development of policy, and provide laboratory and diagnostic services.

However, private-sector managed care organizations (MCOs) have grown in size, stature, and influence, and an ever greater proportion of the populace, including Medicare and Medicaid patients, comes under their purview. A central feature of managed

care is the third-party influence of medical directors and other health plan managers on the care decisions and practices of physicians who treat patients directly.

Some public health departments are restructuring their care delivery systems according to the managed care model, or are contracting with MCOs for delivery of healthcare services to medically underserved patients who have traditionally relied on public hospitals and clinics as their primary source of care. Increasingly, MCOs are being called upon to provide TB-related care and prevention services to persons with or at risk for TB disease. But most jurisdictions and healthcare providers continue to look to health departments for TB clinical expertise, laboratory services, patient follow-up, contact investigation, and assurance that TB will not pose a significant public health risk to the community. These circumstances call for strong alliances between private-sector and public-sector organizations. Public health TB controllers and private providers must work together to fulfill their responsibilities.

KEY ACCOMPLISHMENTS OF THE STRATEGIC PLAN TO DATE

THE STRATEGIC PLAN HAS HAD significant positive impacts on TB training and education. It has increased awareness of issues, needs, and possible solutions. One of the plan's accomplishments has been the creation of a synergy among groups concerned with TB training and

education that has led to new partnerships being forged, pilot projects and initiatives being launched, and innovative programs, materials, and tools being developed and made more widely available. Some examples follow below:

■ **Increased Awareness of the Importance of TB Training and Education**

A notable outcome of the Strategic Plan is a greater awareness of TB issues and the importance of TB training and education as a strategy for dealing with actual or threatened TB disease. The message has reached not only groups directly involved in health care, but other audiences as well. Agencies and organizations that serve populations at risk for TB, yet count health issues as only one of their many focuses of concern, are paying increased attention to TB.

■ **Development and Dissemination of TB Training and Education Resources**

In significant numbers, agencies and organizations are developing, updating, and improving materials and resources, in part as a result of the impetus of the Strategic Plan. An example is the ATS/CDC *Treatment of Latent TB Infection* guidelines. Work is taking place to develop innovative mechanisms for packaging these guidelines appropriately for various audiences and for disseminating the information effectively.

Another important outcome of the original planning process is the updating and expansion of the *Tuberculosis Education and Training Resource Guide* and the development of the *Tuberculosis Education and Training Resource Website*, which provide means for bringing new and revised resources to the attention of appropriate audiences. As part of the development of the Strategic Plan, the

CNTC compiled an inventory of more than 540 TB training and education resources, representing over 140 U.S. and international agencies, organizations, and jurisdictions. The CDC incorporated the inventory into the *Resource Guide*, which it has maintained since 1990. The *Resource Website* offers a searchable online database that currently contains more than 1,100 resources and is constantly being updated. The purpose of the *Resource Guide* and the *Resource Website* is to supply health departments, lung associations, and providers of healthcare and health education with knowledge of and access to materials on TB education, training, and public awareness. They also provide general information about TB for patients and the general public. For more information on the *Resource Guide* and the *Resource Website*, refer to Attachment C.

■ **Extensive Networking and Outreach**

Contacts have been initiated with key U.S. and international agencies and organizations that represent public- and private-sector healthcare providers or serve populations at high risk for TB. The networking serves several purposes. It is intended to increase awareness of TB issues and the need for TB training and education; improve communication among organizations; clarify the needs of particular countries, jurisdictions, and audiences; and garner participation and support for the Strategic Plan. Outreach is also being made to prospective funders to secure commitments for critically needed financial

support for the Strategic Plan and associated TB training and education efforts.

One significant networking initiative is the TB Education and Training Network (TB ETN), which has been instituted by CDC to bring together TB professionals and facilitate communication and collaboration among them. The TB ETN's goals are to build collaborations; improve access to and sharing of resources; promote the exchange of ideas, information, and experiences; provide information about TB courses and training initiatives; and assist members in building education and training skills. An annual TB ETN conference offers business meetings and skill-building workshops.

The TB ETN is open, nonexclusive, and voluntary. All persons who have an interest in TB education and training issues are invited to join. Information is available at:
<http://www.cdc.gov/nchstp/tb/TBETN>

A resource for TB ETN members and others interested in TB training and education issues is TB Educate, an electronic listserv. Subscribers can post inquiries and exchange information about TB education and training issues. For more information on the TB ETN and the TB Educate Listserv, refer to Attachment C.

■ **New Research on Training Technologies**

Initiatives have been undertaken to develop, and examine the success of, distance-learning methodologies (e.g., satellite courses, Internet websites, videos, audiotapes, CD-ROMs) for TB training and education; to make resources more available and accessible on the Internet; and to assess training materials in preparation for the development of a cultural competency curriculum for healthcare providers.

■ **A Valuable Planning Model**

The Strategic Plan offers a flexible and effective model and resource for the planning of TB training and education programs, whether by individual organizations or by coalitions of groups working together toward common goals. The collaborative planning process established excellent mechanisms for articulating and achieving a programmatic mission, goals, and objectives. The systematic needs assessment underpinning the Strategic Plan provided a comprehensive analysis of the status of TB training and education. It clarified issues, identified existing resources and effective approaches, and pinpointed resource gaps and barriers to success. The Strategic Plan provides a solid base of knowledge and technique upon which new programs can be built.

TB TRAINING AND EDUCATION ISSUES

TO EFFECTIVELY MEET THE CHALLENGES of TB control and to reach the goal of eliminating the disease in the U.S., a coordinated and systematic effort is required, with training and education as a key strategy. Healthcare policy makers, medical personnel, and others involved in the effort in all capacities and at all levels, need to be knowledgeable about TB from clinical, epidemiological, sociological, and public health standpoints.

As participants in the Strategic Plan development process assessed various aspects of TB training and education, a number of cross-cutting themes and issues emerged. The Strategic Plan has had positive impacts in many of these areas. It is important to continue moving forward to address the continuing concerns:

■ **Recognition of the Need for Training**

The resurgence of TB in the mid-1980s and the threat posed by MDR TB stimulated interest in and awareness of the need for ongoing TB training and education. Persons responsible for training programs found a receptive audience. In recent years, as TB rates have continued to decline, some of the sense of urgency has waned on the part of persons and organizations that do not have TB control as a primary mission.

Healthcare professionals in general, especially those working in high-incidence areas or with high-risk patient populations, need to have appropriate TB-related knowledge and skills, as do non-clinicians who work with these populations. Advocacy efforts are needed to persuade policy makers, healthcare providers, and organizations that represent or influence target audiences that it is of vital importance to maintain TB training and education as a priority.

■ **Collaboration, Coordination, and Communication**

Valuable linkages already exist among agencies and organizations that provide TB education and training, and new ones are being created through such initiatives as the TB ETN. Because such alliances enable groups to optimize resources and increase their reach, collaborative partnerships should be further encouraged and developed. Additional mechanisms should be established to facilitate partnerships and information exchanges on an ongoing basis.

■ **Targeted Training**

To be effective, curricula and training materials should be focused and targeted very specifically to the needs and roles of the

particular audience for the training. The variables to take into account include:

- The *job* of the audience members (TB control program managers, primary care and specialty physicians, nurse practitioners, nurses, physician assistants, respiratory therapists, laboratorians, outreach workers, social workers, TB surveillance staff, administrators and managers, medical and nursing students, and others)
- The type of *setting* in which they work (public health department, managed care organization, medical service organization, physician/hospital organization, large multi-specialty group practice, Department of Veterans Affairs facility, community clinic, long-term care facility, correctional facility, HIV service organization, homeless shelter, substance abuse program, or other facility that deals with a high-risk population)
- The type of *jurisdiction or community* in which they work (urban, suburban, rural; high-incidence or low-incidence area)
- The *population* with whom they work (general public, medically indigent or underserved communities, foreign-born individuals, correctional facility inmates, HIV-infected persons, substance abusers, homeless individuals, or others)

■ **Core Competencies and Training Standards**

Core competencies should be defined for particular job categories to ensure that training recipients will acquire an appropriate level of knowledge about TB. Both the content of the training and the quality of the delivery should meet suitable standards.

■ **Education and Training of Students of Medicine, Nursing, and Allied Health Professions**

Schools of medicine, nursing, and allied health professions should be encouraged to integrate basic scientific, clinical, and public health elements of TB into their curricula, as a means of improving the status of TB in the education of health professionals and creating intellectual interest in TB among students. Care should be taken to ensure that these curriculum elements are up-to-date and relevant to the learning environment. This will equip the future healthcare workforce with the basic tools to understand the principles of TB prevention and control and the developments in science and practice that will characterize future clinical situations.

■ **Involvement of Providers in Related Areas**

Training programs should be aimed not only at providers working directly in the area of TB control, treatment, or prevention. It is especially important to train providers in other specialty areas who work with

populations at high risk of TB infection and disease, such as substance abusers, individuals with HIV/AIDS, homeless persons, and foreign-born individuals, as well as primary care providers in communities with large populations of such persons.

■ **Cultural Competency**

Because a high proportion of TB-infected persons are foreign born, and because medical personnel who work with them are often foreign born or trained in other countries, TB training and education programs need to be culturally sensitive and appropriate, and to address cultural competency as an element in the curriculum. In addition, knowledge of the sociology of homelessness, substance abuse, and a variety of lifestyles is necessary for providers to interact effectively with these high-risk groups.

■ **Training Materials and Resources**

A variety of excellent TB training and education resources already exists. While there are some significant gaps, particularly in regard to culturally appropriate materials, awareness and accessibility are greater issues than supply. The CDC's *Tuberculosis Education and Training Resource Website* (see Attachment C) offers a valuable mechanism for informing producers and users about TB training programs and materials, providing access to these materials, and helping groups avoid duplication of effort. The *Resource Website* should be sustained

and promoted, along with other means for facilitating the development, sharing, and use of information and materials.

■ **Training Methods and Technologies**

New technologies are creating unprecedented opportunities for distance learning and other innovative training techniques. The Internet is proving to be a productive medium for providing training and exchanging information and resources. Effort should be directed to capitalizing on the potential of web-based resources for distance learning. However, developers of training programs and curricula should remember that in some jurisdictions, particularly in rural areas, training recipients may lack access to newer technologies or sophistication in using them. Computer-based training programs should be flexibly designed so they can be tailored to suit each jurisdiction's needs and resources. Moreover, developers of all training programs should be cognizant of the need to address different learning styles.

■ **Need for Ongoing Effort**

TB training and education cannot be a one-shot effort. It must be a continuing enterprise. Turnover in personnel means that most organizations have ongoing training needs. Moreover, effective training for any individual involves regular follow-up, reinforcement, updating of information, and enhancement of skills and resources.

■ **Need for Funding**

Jurisdictions and organizations often find training expensive and may lack the resources to provide training on a wide scale, or sometimes, to provide it at all. There is a critical need to develop stable funding sources, whether governmental, corporate, or philanthropic, to ensure that there are sufficient resources to develop and distribute training programs and resource, and also to

ensure that persons who need training will have the means to obtain it.

■ **International Cooperation**

Because TB is a worldwide problem, the U.S. should build and sustain collaborative efforts with global partners and take an active role in international TB training and education activities.

III. THE STRATEGIC PLAN: MISSION, GOALS, AND STRATEGIC OBJECTIVES

THE MISSION STATEMENT

**THE NATIONAL STRATEGIC PLAN FOR TUBERCULOSIS TRAINING AND EDUCATION
PROMOTES AND GUIDES TRAINING AND EDUCATION EFFORTS
TO CONTROL AND ELIMINATE TUBERCULOSIS.**

TRAINING AND EDUCATION, WHEN properly focused, directed, and accomplished, are necessary strategies for the control and eventual elimination of TB. This assumption underlies the mission statement and the entire process that led to the development of the Strategic Plan. Although training and education are spoken of collectively, as a joint concept, both words have been included to acknowledge that training and education vary as to their procedures, focus, and audience, and to underscore the importance of both.

The mission statement, created for the 1999–2003 Strategic Plan and reaffirmed by planners for 2004–2008, provides a succinct declaration of the purpose of the plan—the reason why it was developed, and its intended result. “Promotes” and “guides” are key

words. The Strategic Plan does not establish specific training techniques or curricula, nor does it attempt to build an educational program from scratch. Rather, it builds on existing efforts and calls for the expansion of those efforts through greater collaboration and coordination among agencies and organizations involved in TB training and education. The Strategic Plan sets forth priorities and initiates action for a nationwide endeavor to:

- Encourage the continuing development of curricular, informational, and financial resources for TB training and education
- Advocate for the widespread distribution of training resources, extending their reach to all individuals with direct or indirect responsibilities for, or opportunities to,

The Strategic Plan: Mission, Goals, and Strategic Objectives

contribute to TB care, treatment, and control

- Promulgate efforts by agencies and organizations to set appropriate standards for TB training and education efforts,

assess training needs and accomplishments, and achieve the levels of knowledge, skills, and practice needed to control and eliminate TB

STRATEGIC PLAN GOALS

THE GOALS OF THE STRATEGIC PLAN ARE broad statements of intent that define what accomplishments are necessary to carry out the mission. Because each is equally critical to this endeavor, they should be considered a unified package; the order in

which they are presented does not indicate any level of importance or priority. Originally crafted for the 1999–2003 Strategic Plan, the goals, like the mission statement, have been reaffirmed for 2004–2008.

GOAL 1

BUILD, STRENGTHEN, AND MAINTAIN COLLABORATION AMONG THE KEY AGENCIES AND ORGANIZATIONS IN TRAINING

THIS GOAL SPEAKS DIRECTLY TO THE reasons why the Strategic Plan was developed: to avoid duplication of effort and promote a more systematic and better coordinated approach to TB training and education. Working together, TB-related organizations and agencies can accomplish far more than would be possible through individual efforts. The exchange of ideas, information, training technologies, and resources will permit training that is more thorough and up-to-date, reaches more people,

better targets its audiences, and is more cost-effective.

Many strong cooperative links exist among organizations in the U.S. We intend to build upon and expand this network. The collaboration we envision includes agencies and institutions working to control and eliminate TB at the national, state, and big-city levels, as well as those whose constituencies or areas of interest include populations at high risk for *M. tuberculosis* infection and TB disease, such as people who are foreign born, homeless, HIV infected, substance abusers, or

inmates of correctional or other detention facilities.

The Strategic Plan itself has resulted from a significant collaborative effort. The network established during the course of the planning

process will continue to operate through the course of the plan's implementation. We hope it will serve as a model and inspiration for other multi-organizational endeavors.

GOAL 2

BUILD, STRENGTHEN, AND MAINTAIN COLLABORATION WITH GLOBAL PARTNERS

WHILE THE PREVIOUS GOAL CONCERNS collaboration among agencies and organizations within the U.S., this goal extends the reach of their TB training and education efforts beyond our borders. There are several reasons why this is important.

One is that the spread of the TB epidemic around the world constitutes a major global health crisis. It is beyond the capacity of any single nation to deal with the epidemic effectively. All nations share the responsibility for addressing it, for humanitarian as well as practical concerns. The U.S., which has greater access than some countries to funding and other resources, is in a position to play a significant role in mobilizing and coordinating efforts, including education and training

initiatives, to combat this disease. Recognizing that the U.S. role must be mindful of the needs, concerns, and achievements of other nations, the objectives under this goal call for defining the nature of the U.S. role, as well as forging and maintaining effective working relationships with TB-related agencies and organizations that operate within other countries or have international jurisdictions.

An equally important reason to collaborate with global partners is that the worldwide TB epidemic has a direct influence on the U.S., as evidenced by the disproportionately high rates of TB infection and disease among the foreign born. The amelioration of the TB crisis elsewhere will have the beneficial effect of improving TB control in the U.S.

GOAL 3

DEVELOP, IMPROVE, FACILITATE ACCESS TO, AND MAINTAIN AVAILABILITY OF, TB TRAINING AND EDUCATION RESOURCES

MANY EXCELLENT RESOURCES FOR TB training and education exist, including training courses offered by various organizations; model programs and curricula; publications such as manuals, handbooks, reports, journals, newsletters, booklets, brochures, and handouts; audio and video materials; and websites with TB-related information. Primary sources for courses and materials for TB program managers, healthcare workers, surveillance staff, and outreach staff are the CDC's Division of Tuberculosis Elimination, the three Model Tuberculosis Centers, the National Jewish Medical and Research Center, the TB Academic Awardees, the American Lung Association, and several state and big-city TB control programs. Other organizations have also made important contributions.

Despite the wealth of available resources, a number of challenges remain with regard to the development, distribution, and utilization of TB training and education courses and materials. Some examples are:

- Planners of training programs frequently lack information on the resources that are available, their suitability to the program being planned, and where to obtain them
- The audiences for TB training and education are diverse in many ways, including their educational backgrounds, the types of agencies or organizations that employ them, and the professional roles they play in TB treatment and control. The multiplicity of audiences demands a corresponding multiplicity of training approaches and materials to address both the TB knowledge that is needed and the learning styles of the audience members
- Some providers (e.g., primary care physicians, managed care organization personnel) may not perceive TB to be an issue of importance to them. Strategies are needed to recruit them into participating in TB training and education efforts
- Materials require continual updating to ensure that information is correct and current
- Distance-learning methodologies, including satellite and Internet-based courses, are likely to increase in significance and impact. They not only require the development of suitable materials geared to such delivery systems, but also demand that users have access to the necessary technology. This can present a barrier to agencies and organizations that

are smaller in size or have limited financial means

- The lack of financial resources, not only for technology but for trainers, materials, and other costs, deters many agencies and organizations from making commitments

to TB training and education at the levels that they desire or need.

The goal is to ensure that excellent existing resources remain available, that users can obtain them readily, and that new resources are developed or current ones improved to address gaps in information and audiences.

GOAL 4

IMPROVE AND SUSTAIN KNOWLEDGE, SKILLS, AND PRACTICES TAILORED TO LOCAL EPIDEMIOLOGICAL CIRCUMSTANCES

THIS GOAL ARTICULATES THE RESULT THAT TB training and education are intended to achieve and that makes them effective strategies for making progress toward the control and elimination of the disease: the improvement of knowledge, skills, and practices regarding tuberculosis.

Jurisdictions differ widely in their incidence of TB, the demographics of their populations, the proportion of their population

at high risk, and their healthcare infrastructure. Therefore, the knowledge, skills, and practices required to deal with TB most effectively are localized and specific. At the same time, standards of care, patient management, and public health practice cut across jurisdictions and must be clearly delineated and adhered to. Also, the core competencies needed by providers involved in TB treatment and control should be plainly defined.

GOAL 5

IDENTIFY AND MOBILIZE FINANCIAL RESOURCES FOR TB TRAINING AND EDUCATION

TUBERCULOSIS TRAINING AND EDUCATION cannot happen unless adequate funding is in place to support it. Financial resources are

required for developing and disseminating curricula and materials; training trainers; conducting on-site training sessions; enabling

agencies and organizations to acquire and utilize distance-learning technologies; helping them maintain service levels and provide appropriate staff coverage while personnel attend training sessions; and sustaining the implementation of the Strategic Plan. To

accomplish the mission and goals, a concerted campaign is needed to reach out to traditional and nontraditional funding sources and mobilize support from a broad-based network of governmental and non-governmental sources.

STRATEGIC OBJECTIVES FOR 2004–2008

THE STRATEGIC OBJECTIVES IN THE TABLE that begins on the next page are suggested as specific steps that can be taken toward the accomplishment of the five broad goals that have been defined for the *National Strategic Plan for TB Training and Education*.

Considering the overarching aims of the Strategic Plan and the current state of TB training and education efforts, the planners have selected the following strategic objectives as reasonable and feasible priorities for the next five years. They are based on the strategic objectives proposed in the position papers that the six workgroups prepared,

which identified many commonalities in the needs and strategies that pertain to target audiences that are central to TB control.

By intention, the strategic objectives do not specify who will do what. Instead, they describe a desired outcome and identify the types of organizations that would need to be engaged if the strategic objective is to be achieved. We urge all organizations involved in TB training and education to make a commitment and take action that will lead to the achievement of the Strategic Plan's strategic objectives and goals.

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STRATEGIC OBJECTIVES

2004–2008

STRATEGIC OBJECTIVE	DESIRED OUTCOME	STRATEGIES	WHO SHOULD IMPLEMENT
<p><u>STRATEGIC OBJECTIVE 1</u></p> <p>TB education for students</p>	<p>Medical, nursing, and other students preparing for healthcare careers will regularly receive appropriate education about TB.</p>	<p>A. Produce and adopt appropriate and standardized TB curricula for:</p> <ul style="list-style-type: none"> • Medical students • Nursing students • Students in allied health professions • Medical residencies in appropriate specialties 	<p>National organizations that represent medical, nursing, and allied health schools</p> <p>National organizations that represent medical residency programs in appropriate specialties</p> <p>National TB agencies</p>
		<p>B. Regularly include TB topics in exam questions and study materials for:</p> <ul style="list-style-type: none"> • Board certifications • Medical and Nursing Licensures • United States Medical Licensing Exam (USMLE) 	<p>National agencies responsible for board certification examinations</p> <p>National agencies responsible for licensure examinations</p> <p>National TB agencies</p>
		<p>C. In all efforts, pay special attention to clinical details that are over-represented in foreign-born populations and other at-risk groups.</p>	<p>Organizations and agencies listed above</p>
<p><u>STRATEGIC OBJECTIVE 2</u></p> <p>TB core competencies</p>	<p>Healthcare professionals and other appropriate professionals will achieve core competencies regarding TB.</p>	<p>A. Develop, adopt, and promote recommendations for core competencies to be achieved through TB training and education for the following job titles:</p> <ul style="list-style-type: none"> • TB program staff: DOT outreach workers, disease control investigators, health educators, nurses, physicians, program managers • Laboratory staff • Medical directors, clinical providers, and others involved in healthcare in correctional and detention facilities • Law enforcement, corrections, and detention facility personnel: sheriffs, jail and prison officials, immigration judges and officials <p><i>List continues on next page</i></p>	<p>National organizations that represent or influence professionals in the listed categories</p> <p>U.S.-based agencies involved in international TB, working</p> <p>National TB agencies</p>

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STRATEGIC OBJECTIVE	DESIRED OUTCOME	STRATEGIES	WHO SHOULD IMPLEMENT
		<ul style="list-style-type: none"> • Clinicians associated with HIV, addiction, and homelessness programs • Non-clinical staff of HIV, addiction, and homelessness programs • Clinicians involved in migrant health care • Staffs of community-based organizations serving foreign-born populations • Clinicians who provide refugee health assessments • Civil surgeons • Staff and contractors of U.S. agencies providing direct TB care in the international arena or care to individuals who may have been exposed to TB outside the U.S. • General healthcare personnel: Physicians, nurses, physician assistants, nurse practitioners, respiratory therapists, pharmacists • Morticians 	
		B. Incorporate core competency recommendations into the development of appropriate educational programs, curricula, and materials.	National TB training and education agencies All agencies producing materials
<p><u>STRATEGIC OBJECTIVE 3</u></p> <p>TB training opportunities</p>	Opportunities for regular and ongoing TB training and education will be consistently available to persons in appropriate job categories.	<p>A. Deliver core competency training to targeted audiences through their national, regional, and local meetings and conferences.</p> <p>B. Promote the use of core competency curricula and materials to local and regional provider groups, and to institutions and agencies that employ these providers, for use in conferences, meetings, and other appropriate venues.</p> <p>C. Make opportunities for agency and organization staffs to receive TB training and education that addresses appropriate TB core competencies (see Objective 2 for a listing of job categories that should receive training).</p>	<p>National organizations that represent or influence persons in appropriate job categories</p> <p>National TB training and education agencies</p> <p>National organizations that represent or influence persons in appropriate job categories</p> <p>State and local TB programs</p> <p>National organizations that represent or influence persons in appropriate job categories</p> <p>State and local TB programs</p> <p>U.S.-based agencies involved in international TB</p>

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STRATEGIC OBJECTIVE	DESIRED OUTCOME	STRATEGIES	WHO SHOULD IMPLEMENT
		D. Use dedicated training staff to deliver TB training and education to local priority target audiences and keep TB program staff up-to-date.	State and local TB control programs
		E. Deliver training for non-TB program physicians and nurses through dynamic, easily updated electronic formats, such as websites, personal digital assistants, and other web-based products.	National producers of TB training and education materials
		F. Arrange for TB training and education participants to receive continuing education credits whenever possible.	National and local training providers
		G. Recommend and promote the use of TB training and education opportunities and programs to individuals in targeted professions.	National organizations that represent or influence persons in appropriate job categories
		H. Incorporate locally appropriate TB training and education recommendations into regional, state, and local public health plans, such as state HIV plans.	State-level HIV planning bodies and others with similar responsibilities
		I. Make ongoing resources available for providing state and big-city TB programs with dedicated training staff to supply TB training and education to public health staff and external parties.	Funders
		J. Provide consistent, ongoing support for an expanded network of training organizations (Model Centers).	Funders
STRATEGIC OBJECTIVE 4 Cultural competency	Cultural competency will be an integral portion of TB training and education curricula.	A. Incorporate cultural competency into TB training and education materials and programs as an important subject to be addressed.	National TB training and education agencies State and local TB programs
STRATEGIC OBJECTIVE 5 Materials for TB training and education	Up-to-date, high-quality, culturally appropriate materials and resources for TB training and education will be easily accessible.	A. Consider and address the needs of the target audiences described under Objectives 1 and 2 when developing and maintaining TB training and education materials.	National producers of TB training and education materials

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STRATEGIC OBJECTIVE	DESIRED OUTCOME	STRATEGIES	WHO SHOULD IMPLEMENT
		<p>B. Produce, maintain, and make available regularly updated, culturally appropriate, low-literacy supporting materials, in at least three languages, for use with appropriate audiences. Ensure the availability of materials in at least three languages, materials suitable for low-literacy audiences, and materials that address TB issues related to foreign-born populations.</p>	<p>National producers of TB training and education materials</p>
		<p>C. Make centrally supported TB training packages (slides, handouts, etc.) available and accessible to national groups seeking to include TB information in annual conferences or meetings.</p>	<p>National producers of TB training and education materials</p>
		<p>D. Promote access to and use of existing TB training and education materials, and existing cultural competency materials, where more specific alternatives do not exist.</p>	<p>National and local training providers</p>
		<p>E. Develop a database that provides up-to-date information on clinical issues related to TB in foreign-born populations that can be accessed through such technologies as web-linked computers and hand-held devices.</p>	<p>National producers of TB training and education materials in partnership with a database vendor having hospital expertise</p>
		<p>F. Make regular use of, and contribute to, the CDC <i>TB Education and Training Resource Website</i> (see Attachment C), to identify available resources and materials and avoid unnecessary duplication.</p>	<p>National and international TB agencies, state and local TB programs, and other relevant organizations</p>
		<p>G. Maintain, update, expand, promote, and support the CDC <i>TB Education and Training Resource Website</i> as a searchable database and as a printed reference to serve as a definitive central clearinghouse for information on materials and resources.</p>	<p>Funders</p>
<p><u>STRATEGIC OBJECTIVE 6</u> TB-dedicated networks for training and education staff</p>	<p>Nationwide and international networks will be in place to facilitate communication and sharing of information among persons concerned with TB training and education.</p>	<p>A. Provide ongoing resources to maintain, expand, and promote the TB Education and Training Network (TB ETN).</p>	<p>Funders</p>

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STRATEGIC OBJECTIVE	DESIRED OUTCOME	STRATEGIES	WHO SHOULD IMPLEMENT
		B. Promote participation in the TB ETN and the TB Educate Listserv by individuals involved in the delivery of TB training and education.	International, national, state, and local agencies that employ, represent, or influence individuals involved in the development or delivery of TB training and education
<p><u>STRATEGIC OBJECTIVE 7</u></p> <p>Full funding and implementation of the Strategic Plan</p>	<p>The <i>National Strategic Plan for TB Training and Education</i> will be fully funded and implemented.</p>	A. Provide ongoing resources for administrative and logistical support to the Implementation Committee of the Strategic Plan and for financing the inclusion of representatives from the target groups, as well as producers of TB training and education.	Funders
		B. Provide ongoing funding for the administration, promotion, evaluation, renewal, and regular updating of the Strategic Plan.	Funders
		C. Endorse the <i>National Strategic Plan for TB Training and Education</i> .	Agencies and organizations that can influence the development or delivery of TB training and education, such as national TB agencies, organizations that represent or influence key target audiences, and state and big-city TB controllers
		D. Consult the recommended strategies in the Strategic Plan when developing individual plans for the next five years.	Agencies and organizations that develop, deliver, or fund TB training and education
<p><u>STRATEGIC OBJECTIVE 8</u></p> <p>Coordinated U.S.-based efforts for international TB training and education</p>	<p>International TB training and education will be enhanced through the collaboration, coordination, and communication among all agencies involved in such efforts.</p>	A. Organize, promote, and use appropriate mechanisms (e.g., listserv) for collaboration and ongoing communication among all agencies involved in international TB training and education.	<p>International and national TB agencies</p> <p>U.S.-based agencies involved in international TB training and education</p>
		B. Create a mechanism for qualifying, identifying, and accessing consultants who can provide overall TB expertise and specialty information. Promote use of individuals on the lists to U.S.-based agencies involved in international TB training and education.	<p>International or national TB agencies</p> <p>National TB agencies</p>

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STRATEGIC OBJECTIVE	DESIRED OUTCOME	STRATEGIES	WHO SHOULD IMPLEMENT
		C. Promote awareness of the global scope of TB and the ongoing need for international TB training and education by including TB programming at meetings and conferences.	Professional societies
		D. Develop and disseminate strategies to enable state and local TB programs and U.S.-based agencies involved in international TB to coordinate activities around movement (such as immigration, deportation, or re-entry) of foreign persons with TB and persons exposed to TB in foreign countries.	U.S.-based agencies, working with national TB training agencies and state and local TB programs

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POSITION PAPER • WORKGROUP 1

TUBERCULOSIS TRAINING AND EDUCATION FOR

Private Sector • Managed Care • Provider Education

I. INTRODUCTION

This paper describes issues related to tuberculosis (TB) training and education for healthcare providers and administrators in the private sector, including managed care organizations, and for providers-in-training in medical schools, nursing schools, and schools for allied health professionals. Changing institutional and organizational practices in the private sector are exerting a direct and powerful influence on the ways physicians practice medicine, including the care and treatment of patients with TB infection or disease. These circumstances make health professionals in the private sector and providers-in-training important audiences for TB training and education.

The goals of the workgroup were to examine the current scope of effort in these settings, and to develop strategies that could lead to a more comprehensive and coordinated approach to TB training and education in the private sector and among students. In this paper, the workgroup:

- Profiles the target audiences, identifying the job categories in the provider population that would be appropriate recipients of TB training and education
- Defines issues and problems relevant to TB training and education for the target audiences
- Identifies programs, models, and organizations that have been successful in reaching these audiences, and resources available for this purpose
- Catalogues the target audiences' training needs and the barriers that impede efforts to meet these needs
- Presents strategic objectives, related to the goals of the Strategic Plan, that are designed to address the issues raised

The original version of this paper was prepared for the *National Strategic Plan for Tuberculosis Training and Education* and was published in that document in January 1999. For the current version of the Strategic Plan, the paper has been substantially revised and updated.

II. TARGET AUDIENCES

The target groups addressed by this paper are persons and organizations in the private sector that have a direct or indirect influence on patient care. Several factors make the private sector an important target for TB training and education.

First and foremost, private-sector providers and organizations have increasing responsibility for the care and treatment of patients who have or are at high risk for *M. tuberculosis* infection and TB disease. In an era when public health programs are facing severe cutbacks, more and more care must be delivered through the private sector. Unfortunately, as TB morbidity decreases in many jurisdictions, both the perceived importance of TB education and the clinical competence of providers are likely to be reduced, even as these providers become more essential to TB surveillance and control.

Secondly, it is now possible to use the influence and organizational capacity of managed care organizations and other similar entities to educate providers about optimal TB care, including public health responsibilities. Over the past five years, the continuing evolution of practice in the private sector has brought more players into the managed care system, including large group practices and institutions that employ larger numbers of providers. As more providers become intricately connected with such organizations, an opportunity exists for exerting a direct and powerful influence on the ways physicians, nurses, and allied health professionals practice medicine. These influential organizations could and should use TB training and education to ensure that the private sector has more providers who are well trained about TB.

Private-sector TB training and education should be directed to individuals and organizations in several groups:

Physicians, Nurses, and Allied Health Professionals

This group can be divided into smaller, more specific target audiences:

Professionals who have direct patient care responsibilities, or direct patient contact. These individuals include physicians and other healthcare providers in independent practices, as well as

contractors with managed care organizations and salaried staff of healthcare organizations. In the latter two circumstances the clinical services they provide might be directly influenced by a managed care health plan or an employer organization:

- Primary care providers serving high-risk populations, including staff at community health centers and private practitioners in communities where high-risk populations live
- Hospital-based physicians, including emergency department staff, critical care staff, occupational health staff, and pathologists
- Physicians-in-training, including interns, residents, and fellows, especially pulmonary and infectious disease fellows in teaching institutions
- Pulmonary and infectious disease practitioners
- Infection control practitioners
- Nurses
- Nurse practitioners
- Physician assistants
- Respiratory therapists

Pharmacists and laboratory workers. These individuals provide essential links between the physician and medical treatment of patients, and their understanding of infection, disease, and treatment are critical to ensure safe and complete therapy.

Morticians. Morticians and related professionals form a high-risk group who themselves may be at risk for TB infection. TB training and education is especially important for providers in high-risk communities.

Medical and Nursing Schools, and Schools for Allied Health Professionals

TB education for students being educated for healthcare careers must begin early and continue through formal, ongoing training. This audience consists of:

- Students in medical schools, nursing schools, and schools for allied health professionals
- Physicians-in-training (including pathologists-in-training)
- Fellows specializing in pulmonary medicine and infectious diseases

The last two, it should be noted, are listed twice: once as direct care providers and now as physicians in educational programs. Their role as direct care providers—often in facilities that

serve the marginal populations at risk for TB—makes these providers crucial in all considerations of TB treatment and control. However, their roles as students and teachers in academic programs can provide opportunities for TB training and education that should be considered outside their clinical duties.

Managed Care and Other Healthcare Organizations

This audience includes professionals, administrators, and decision makers who have an indirect influence on patient-care services through positions they hold with such organizations as:

- Managed care organizations
- Large multi-specialty group practices
- Personal care provider networks
- Medical service organizations (MSOs)
- Physician/hospital organizations (PHOs)
- College health services
- Medical societies and professional organizations
- Certifying agencies and medical boards

III. DEFINING THE ISSUE

For three decades prior to the mid-1980s, TB cases and rates had declined yearly. Consequently, TB hospitals were closed, fewer healthcare practitioners encountered TB cases, and jurisdictions redirected resources that had been allocated for TB prevention and control to other needs. The resurgence of TB in the mid-1980s to the early 1990s, along with the emergence of drug-resistant strains, demonstrated the need for continued vigilance and for more effective approaches to TB treatment and control.

The management and coordination of TB patient care has implications for patient and public health outcomes. Increasingly, TB care relies on providers in the private sector, and on the organizations that support and represent them. According to a 1997 report by the World Health Organization (WHO)¹:

In many instances, doctors are to blame for *poor diagnosis*, e.g., inappropriate use of radiology, inadequate use of sputum microscopy and for *poor treatment*, e.g., providing regimens that are neither standard nor generally accepted, using incorrect doses of anti-tuberculosis drugs and treating

for an inadequate period, failing to monitor the patient during treatment, failing to inform the patient and relatives about tuberculosis, failing to trace the household contacts of smear positive pulmonary tuberculosis. These mistakes occur in the private sector as well as in the public sector.

Consequently, not only are resources wasted on misdiagnosed patients, but in those patients who have tuberculosis the inadequate use of anti-tuberculosis drugs has led to the problem of increasing drug resistance in many countries and, worse yet, the emergence and rise of multi-drug resistance.

Thus it is vital to improve the knowledge of doctors about tuberculosis and to train them in the skills necessary for the proper diagnosis and treatment of tuberculosis in an individual patient and in the community.

To greater and lesser extents, all of the target audiences we have defined bear some of the responsibility for the problems the WHO report cites. All professionals with direct patient contact, any organization that can influence them, and all of their schools and training programs must share in the responsibility of TB control. As incidence of active TB disease turns increasingly into a low-frequency but high-impact event, the need for systematic effort to keep up provider skills becomes all the more apparent.

The dominance of the TB sanitarium movement (which began at the turn of the century and continued through the 1950s) removed the care of TB patients from the mainstream of medicine, leaving generations of physicians inexperienced in serving this population.

The decade following the introduction of chemotherapy witnessed an effort to transfer the care of these patients to the private sector of medicine. However, a number of factors contributed to a lack of interest on the part of mainstream physicians. These factors included the predominance of TB cases among immigrants and the poor, the consequent stigmatization of the disease, fear of infection, a significant decline in the number of cases, and continuing controversy over the value of preventive therapy. Most TB patients were diagnosed in inner city hospitals, and their care became centralized in public health departments.

After the introduction of anti-TB medication in the late 1940s, there was hope that TB would soon be eradicated. There was a steady decline in the incidence of TB in the United States from 1953 through 1984. However, from 1985 through 1992, the number of reported TB cases increased by 20 percent. The major factors contributing to this increase were:

- A deterioration of the TB public health infrastructure
- The HIV/AIDS epidemic
- Immigration from countries where TB is common

- Transmission of TB in congregate settings (e.g., health care facilities, correctional facilities, homeless shelters)

Since 1993, the number of TB cases reported has again declined, and the nation has recovered from the resurgence of TB that occurred in the mid-1980s. This decline has been primarily attributed to increased efforts to strengthen TB control programs that promptly identify persons with TB, initiate appropriate treatment, and ensure the completion of therapy. However, the nation cannot let down its guard when the goals are TB control and prevention, and the eventual elimination of TB as a public health threat. Although the overall number of TB cases is decreasing, TB cases continue to be reported in every state.

Now that TB is once more in decline in the U.S., many public health jurisdictions are again dismantling categorical TB programs in favor of generalist approaches, leaving the management of TB infection and disease to primary care providers who may be inadequately trained or poorly informed in this area of medicine. TB education and training is not a priority of most healthcare providers in the U.S. today. Nevertheless, there is a growing need for increased competency in TB-related clinical practice, stemming from the decline in education and training, as well as the increased complexity of TB cases. Unless provider education can be improved and the public health infrastructure can be adapted to accommodate the changes brought about by decentralization, we are likely to see a resurgence of the problems encountered 20 years ago.

The probability of any physician encountering an actual case of TB in the U.S. today is relatively small, and very few physicians see many cases. Even in areas of high TB incidence, only physicians and other healthcare providers who care for the medically indigent, the socially disadvantaged, or immigrant groups from high-incidence countries are likely to regularly encounter actual cases of TB. But while TB cases are becoming rare events for most providers, latent TB infection (LTBI) is still common. The diagnosis of LTBI could apply to as many as 15 million people in the U.S., based on data from the 1999–2000 National Health and Nutrition Examination Survey produced by the National Center for Health Statistics, part of the Centers for Disease Control and Prevention (CDC). Because direct medical intervention is possible through treatment of LTBI, this diagnosis must be considered in every individual with TB risk factors.

However, many providers do not have sufficient knowledge, skills, and experience to effectively diagnose and treat TB infection or TB disease. The appropriate use of diagnostic tests for these conditions is often misunderstood, and the treatment of patients with TB infection and disease is becoming increasingly complex. In addition, nurses, nurse practitioners, physician assistants, and other allied health providers—often the first to encounter a patient with TB—receive little or no education or training about the disease, and cannot recognize its manifestations.

IV. SUCCESSES AND RESOURCES

Many successful TB training and education efforts have been made by the private sector and on their behalf, and a large number of resources are available. These include educational materials in many formats, courses and curricula for on-site and distance learning, and a variety of Internet resources. Organizations that can offer significant TB training and education resources are listed in this section.

Centers for Disease Control and Prevention

The Division of Tuberculosis Elimination (DTBE) of the CDC has developed a number of TB training resources that are appropriate for private-sector providers:

■ ***Tuberculosis Education and Training Resource Website***

Maintained by CDC, the *Tuberculosis Education and Training Resource Website* is an online searchable database of TB education and training materials and resources currently available for providers, patients, and the general public. It is an excellent place to begin when searching for TB training and education resources. The website evolved from the CDC's print document, the *Tuberculosis Education and Training Resource Guide*, and incorporates the resource inventory compiled for the first Strategic Plan. Listings include resources that apply to particular audiences, including those in the private sector. The website address is: <http://www.findtbresources.org>

All agencies involved in TB control are encouraged to make regular use of this website, both to list new products they have produced and to ascertain what materials are already available. This participation will make the website an even more effective means of conserving funds, coordinating efforts, and sharing resources. For more information, refer to Attachment C.

■ ***Core Curriculum on Tuberculosis***

The *Core Curriculum on Tuberculosis* was originally developed by CDC in 1990 in collaboration with the American Lung Association and is now in its fourth edition. It was intended for use in preparing and planning educational activities or as a reference for the practicing clinician caring for patients with TB or LTBI. The *Core Curriculum* covers TB epidemiology, diagnosis, treatment, prevention, and infection control, and is being updated to accommodate new concepts of pathogenesis of infection and disease, changing technologies in the laboratory, and new approaches to treatment. It is updated regularly and will soon be available as a web-based course.

Model TB Centers

In response to the resurgence of TB in the mid-1980s, CDC began funding three Model TB Centers in 1994. Since that time, the Model TB Centers—the Francis J. Curry National Tuberculosis Center (California), the Charles P. Felton National Tuberculosis Center at Harlem Hospital (New York), and the New Jersey Medical School National Tuberculosis Center (New Jersey)—have served as an important TB training resource for private-sector providers. Each provides a mix of training courses, web-based materials, print materials, and telephone consultation.

National Jewish Medical and Research Center

The National Jewish Medical and Research Center has traditionally trained expert TB clinicians and is known worldwide for its TB training. The Center provides training for fellows, residents, medical students, and postdoctoral candidates; offers a lecture course on TB on a regular basis; and provides a telephone consultation service for physicians. It also serves as a training ground, providing extensive opportunities for fellowships for post-degree candidates.

Tuberculosis Curriculum Coordinating Center

The national TB Education Consortium is based at the University of California San Diego School of Medicine and has been funded by the National Heart, Lung, and Blood Institute of the National Institutes of Health for five years as the Tuberculosis Curriculum Coordinating Center (TCCC). The TB Education Consortium is a collaborative group of 26 partner schools and over 30 partner organizations initiated in the fall of 2003. Participants are focusing on curriculum development and improvement in health care professional schools throughout the U.S. (programs that provide basic education for students of medicine, nursing, pharmacy, public health, respiratory therapy, medical technology, and physician assistance programs). Curriculum development includes innovative web-based technology as one way of disseminating information, as well as more traditional methods, such as abstracts and presentations at professional meetings and publications in appropriate journals.

Other Organizations

Among the other organizations that offer TB training and education resources are the following:

- State, big-city, and local health departments—TB control programs
- American Thoracic Society (ATS)

- American Lung Association (ALA)
- American College of Chest Physicians (ACCP)
- Infectious Disease Society of America (IDSA)
- North American Region, International Union Against Tuberculosis and Lung Disease (IUATLD)
- National Tuberculosis Controllers Association (NTCA)
- National Laboratory Training Network (NLTA)
- American Nurses Association (ANA)

V. NEEDS & BARRIERS

For private-sector healthcare providers, students, and groups, the main barrier to TB training and education is the perception that TB is relatively unimportant compared to the many more high-profile medical problems competing for their attention. This perception is reinforced by the decreasing TB case rate in most practice settings, especially private practice settings.

Although there has been a renewed emphasis on TB control and prevention, and a major commitment of resources since the mid- 1990s, efforts to engage the private sector have not been as successful as those aimed at public sector staff. In a time of decreasing incidence, when TB programs are working more broadly with private sector providers, more must be done to establish and preserve clinical competency outside the formal boundaries of TB programs. Implementation and maintenance of successful strategies to engage the many private-sector providers who may be called upon to diagnose and treat TB, must be considered a central need in TB training and education. Supplying suitable materials for such a diverse group will be challenging, but access to high-quality teaching materials and trainings alone will not be sufficient. There must be incentive to prioritize TB among the many topics private-sector providers are called upon to learn.

The need for greater TB-related competence among private-sector providers must be addressed on several fronts:

More education about TB in professional schools. Currently most medical schools, nursing schools, and schools of allied health professions place limited emphasis on TB, and what TB training and education is available is often not up to date. As students prepare for healthcare professions, they need to be aware not only of domestic TB issues, but of international ones, as foreign-born residents are accounting for an increasing percentage of domestic cases, and global TB remains a major source of human suffering. As a result of the deficiencies in the schools' approach

to TB, most TB training and education takes place in postgraduate settings, such as specialty seminars and courses.

Improved TB education for physicians-in-training. Following medical school, physicians receive direct clinical training and experience as residents, interns, and fellows. In these capacities, they also play an important role in providing training to medical students still in school. Therefore, TB training and education provided to physicians at this point in their careers can have a wide-ranging impact.

Because specialist practitioners and trainees in pulmonary medicine and infectious diseases often guide the diagnosis and treatment of TB cases, and because they are key teachers for medical students, interns, and residents in teaching hospitals, their training must be comprehensive and remain current.

Recognition of TB's importance by certifying organizations. Certifying organizations, such as the Joint Commission of Health Care Organizations (JCAHO) and the National Committee for Quality Assurance (NCQA), should be approached to develop TB-specific standards of practice, or requirements that facilities have regularly updated policies that are consistent with ATS/CDC TB guidelines. NCQA should be asked to develop TB screening and treatment recommendations for managed care agencies, which influence private practitioners through contractual relationships. Certifying boards, such as the American Board of Internal Medicine (ABIM), need to incorporate more current TB-related material into their syllabi and their certifying examinations.

Better opportunities for ongoing TB training and education for current providers. Improving TB education for students preparing for careers in healthcare professions will help to ensure TB competence in future providers. It is equally important to extend TB training and education efforts to current providers in order to alert them to TB concerns and issues, and to update and expand their TB-related knowledge and skills.

Focused TB education for decision makers and providers in managed care organizations. Managed care health plans exert an enormous influence on clinical practice across the nation, including the populations most at risk of contracting TB. This makes the managed care area a priority focus for educational intervention. Because the number of managed care health plans and medical directors is relatively few, a focused TB education program could have immediate and expanded impact on both the diseased and the infected TB populations. By definition, managed care plans are structured and provide a framework upon which training and education can be built, and through which changes in practice can be implemented and assessed.

As managed care health plans transfer financial risk to medical service organizations (such as Kaiser), physician/hospital organizations, and multi-specialty group practices, the medical directors of these groups are expected to assume many of the management duties previously performed by the medical directors of the health plans. However, the populations under their influence are smaller in scale than is the case with full health plans. As a result, education efforts may need to be more tailored to meet the diverse needs of these target audiences.

Physicians, Nurses, and Allied Health Professionals

Professionals with direct patient care responsibilities. For private-sector providers, succinct educational materials are needed that focus on provider/public health teamwork as a means of ensuring continuity through completion of therapy.

Few specialists and far fewer primary care physicians treat more than one TB case annually. Their focus is on diagnosis and the prescription provided during office visits, and not on the process of ensuring adherence through completion of therapy. There is also a lack of recognition of the role of the public health department (such as the provision of directly observed therapy [DOT], case management, contact investigation, and surveillance). As a result, these providers may not place a high priority on TB training. In low-morbidity areas, private practitioners are isolated and may not have the opportunity to discuss cases or learn about new trends in clinical and public health issues.

Physicians and other providers with direct patient care responsibilities need to heighten and maintain their awareness of TB as a clinical disease entity (especially in respiratory illnesses lasting more than three weeks). In addition, they need to know:

- The indicators for considering active TB as the cause of a patient's illness
- Appropriate skin test screening and interpretation
- The classification of TB and underlying diagnostic standards
- The clinical/laboratory tests that are necessary to support a diagnosis of TB disease/infection, and when these tests are best employed to maximize cost effectiveness
- The significance of prior Bacille Calmette-Guerin (BCG) vaccination
- Appropriate treatment of active TB, including individualized case management with DOT as standard care, the appropriate use of combination medications, appropriate monitoring of treatments for LTBI and active disease, and indications for specialty consultation
- The proper diagnostic evaluation/significance of HIV test results

- The value of and requirements for case reporting and ongoing involvement of the health department and the public health nurse in case management
- The necessity of prompt and effective linkage with a public agency, to ensure both a full course of disease treatment and a thorough contact follow-up
- Treatment of LTBI

As they become involved in the essentially public effort to treat and control TB, private providers become, in essence, extensions of the public TB control programs. As partners to the official TB control staff, private providers should become aware of the outcome measures that the TB programs use to judge the effectiveness of TB control in the local community. Outcome measures can assess both the individual efforts of providers and the aggregate work of the public and private sectors.

Examples include:

- Timely and complete case reports
- Monthly updates to the health department until treatment completion
- Percentage of patients on an effective regimen (target = 100 percent)
- Percentage of sputum conversions documented
- Percentage of drug susceptibility testings reported
- Chest x-ray after three months of treatment for sputum negative suspects
- Measurements for treatment of LTBI and contact follow-up

A team of nationally known TB experts is needed to provide acceptable advice to peers at state and big-city medical society conferences, as well as at annual meetings of specialty societies. Similarly, experts should publish in specialty journals, going beyond diagnosis and treatment to detail the intricacies of co-managing TB patients with public health departments.

Physicians-in-training. Since TB education is not strong in U.S. medical schools, training and education about TB is frequently left to the clinical training years, and there it often depends on the case mix, which is increasingly scant. In teaching hospitals, much of the case-based education of medical students on clinical rotations falls to interns and residents who, in turn, rely on fellows in pulmonary medicine and infectious diseases as their most accessible “experts.” The problem is that these “experts” themselves have often had little TB experience and little case material to stimulate their concern or their interest in learning more about this disease.

We strongly believe that in academic medical centers, a special emphasis needs to be placed on educating pulmonary and infectious disease fellows about TB. Not only do they directly influence

patient care in the institution; they make lasting impressions on the house staff in all specialties, on medical students, and even on their attending physicians, who are stimulated to learn from their fellows. Fellows routinely select cases for hospital conferences, prepare bibliographies, and do extensive “curbside” consultation on the full range of TB issues, from skin testing to treating exotic manifestations of TB. In the future, in practice, these specialists will continue to influence TB care in their institutions and teach private providers about the disease. They also have ongoing access to continuing TB education through national meetings, and should be stimulated to participate and pass on what they learn.

Being sure that relevant TB questions appear on board-certifying exams at all levels of training is one way, but not the only way, to ensure that TB is perceived as a relevant subject. Another strategy is to promote greater awareness of the global impact of TB and the threat this disease will continue to pose for travelers to other countries as well as to persons from high-risk settings who come to the U.S. Finally, in areas with multiple training centers, a coalition of local academic TB experts and the health department can provide regular intensive TB training sessions specifically aimed at pulmonary and infectious disease fellows, to compensate for some of the informational deficits due to limited bedside experience.

Although today there is no single website dedicated specifically to physician and nurse education or the teaching of clinical decision making, there are numerous readily accessible Internet sites that provide TB resources. However, these resources are not well integrated into clinical teaching programs. Collaborations between public health services and academic centers have been successful, but are almost exclusively based on patient care interactions. They afford little educational interchange, partly due to limited staffing.

Physicians-in-training are often far removed from the state and big-city TB control programs that receive most of the TB training materials, as well as from opportunities that involve participation in networking activities, and they are often uneducated about the unique needs of a successful TB program.

Pharmacists, morticians, and related private-sector providers. Needs for this group include:

- Continued support from federal agencies, such as CDC and the National Institutes of Health (NIH)
 - More TB education in schools for allied health professionals, especially on the identification of high-risk groups, screening, infection control, discharge planning, coordination of care with other agencies, and monitoring of treatment adherence
 - More TB-related continuing education that is targeted to allied health professionals
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- Continued support for networking and training regarding TB, especially in low-morbidity areas

Students in Medical Schools, Nursing Schools, and Schools for Allied Health Professionals

There should be a national consensus to include TB education at every level of medical and nursing school curricula, including the basic sciences, medical and surgical training, epidemiology, and public health courses. Given the relationship between TB and HIV, curricula need to include the concept of co-pathogenesis, both as it affects these two diseases and as a model of two clinical conditions having synergistic effects. TB also represents an opportunity to teach medical and nursing students about the importance of patient behaviors in the prevention, diagnosis, and management of disease; the essential role of the health department in managing patients and suspects; and the role of international health agencies, such as the World Health Organization, in managing the disease worldwide.

It is necessary to develop an organized approach to medical school curriculum committees across the country to implement and sustain ideas such as:

- Integration of basic science and behavioral science with clinical medicine
- Access to the NIH-sponsored TB Curriculum Coordinating Centers
- Case-based instruction on TB diagnosis, lab utilization, treatment, management of drug-resistant TB, and social/behavioral aspects of TB
- Use of the Internet, including a database of digitized radiology images, and continuing medical education (CME) credits and continuing education units (CEU) for distance learning

Current barriers include:

- Poor awareness and utilization of educational materials currently available to students and trainees
 - Limited experiences available with TB patients
 - Limited access to teachers with TB experience and expertise
 - Lack of education regarding the medical and social problems involved in treating TB, such as the management of DOT; language barriers with non-English-speaking patients; financial incentives and disincentives for adherence to treatment; and patients' cultural, ethnic, and personal beliefs that may impede TB prevention, diagnosis, and treatment
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Medical and nursing school faculty frequently lack the TB expertise to provide effective TB education. TB is given only minor time and attention by curriculum committees, infectious diseases and pulmonary divisions, and microbiology departments. Radiology departments frequently lack experience in anything other than the most classical presentations of TB, which limits their ability to train primary caregivers or radiologists-in-training. For multidrug-resistant TB (MDR TB), there is little expertise in medical schools on the general thoracic surgery approaches to TB management in collaboration with medical management, and therefore little or no training of the next generation of surgeons in this area. In general, microbiology laboratories in teaching centers have little expertise with TB, because it is usually the charge of the state health department, and therefore they are unable to teach healthcare workers and laboratorians-in training effectively.

Managed Care and Other Healthcare Organizations

Managed care plans and other healthcare provider groups. Medical directors of managed care plans and provider groups are under increasing pressure to limit expenditures, especially as government-imposed mandates divert premium funds to legislated services. Public funds, both federal and state, are, by design, unstable, putting immense pressure on health department leaders to prioritize their support to high-volume or high-visibility issues. This minimizes their ability and inclination to join categorical TB educational and training efforts directed at private-sector healthcare providers.

TB training needs for this audience include the issues that relate to providers with direct patient-care responsibilities, as described above. Another factor to be taken into consideration is the increased involvement of trained public health personnel, such as public health nurses, case managers, and community outreach educators, in the care of TB patients being treated in private and managed care settings.

Medical societies, professional organizations, and other influential groups or associations.

After decades of involvement in sponsoring educational programs, state and local medical societies are becoming more focused on other professional issues such as tort reform, reimbursement rates, and general policy development, leaving the role of professional education to specialty and subspecialty organizations, such as the ATS and the IDSA. Both have retained an educational focus on TB. However, more general organizations, such as the Academy of Family Medicine, the Society of Internal Medicine, and the American College of Physicians (each of which sponsors multiple educational programs every year) are clearly in a position to reach the largest volume of primary care physicians. Realistically, though, these professional organizations will be focused on more prevalent disease conditions and, in addition, are unlikely to have an impact on those

physicians actually serving those patients at the highest risk for TB infection or disease—immigrants and minorities.

Professional societies with TB-relevant missions, such as the ALA, ATS, IDSA, the American Academy of Pediatrics, the American College of Physicians, and the American College of Chest Physicians, need to advocate for TB competence by improving and maintaining TB education in state medical societies' programs and in local hospitals' grand rounds.

In addition, there should be increased concern for and attention to the appropriate treatment of TB by national accreditation agencies such as NCQA, JCAHO and professional boards that award board certification to family practitioners, general internists, pediatricians, and pulmonary and infectious disease specialists.

Continued support and awareness is needed from federal agencies, such as CDC and the National Heart, Lung, and Blood Institute of NIH, and from professional boards, such as the American Board of Thoracic Surgery, for increased training in medical centers. As TB morbidity declines, so will the time and funding afforded to TB research and to TB education in medical schools, continuing education courses, and other settings. The goal of the new NIH-sponsored TB Curriculum Coordinating Centers program is to expand and improve current teaching about TB to students of medicine, nursing, and allied health professions, and to practicing professionals in postgraduate environments.

Furthermore, advocacy efforts are essential, specifically to improve TB education and make it a priority of practicing healthcare providers in the U.S. today. Agencies such as CDC and NIH should undertake such advocacy efforts, employing the resources of the Model Centers and the new TB Curriculum Coordinating Centers to set and enforce education and standards.

VI. STRATEGIC OBJECTIVES

The strategic objectives below are suggested as specific steps that can be taken toward the accomplishment of the five broad goals that have been defined for the *National Strategic Plan for TB Training and Education*. Considering the overarching aims of the Strategic Plan and the current state of TB training and education efforts for private-sector providers, this workgroup has selected the following objectives as reasonable and feasible priorities for the next five years. They provide a means of beginning to address the issues identified in Section V, Needs and Barriers.

By intention, the strategic objectives do not specify who will do what. Instead, they describe a desired outcome and identify the types of organizations that would need to be engaged if the strategic objective is to be achieved. The workgroup charges the Implementation Committee of the Strategic Plan to secure commitment and action from the necessary agencies during the coming five years.

Strategic Objective 1

Desired Outcome: Increased TB education for medical students, nursing students, and other students planning healthcare careers

Strategies:

National TB agencies should work with national agencies that represent medical, nursing, and allied health schools to produce and promote local adoption of appropriate and standardized TB curricula for each discipline.

National agencies that represent medical residency programs in internal medicine, infectious disease, family practice, pediatrics, and pulmonology should do the same.

Strategic Objective 2

Desired Outcome: Regular and ongoing inclusion of TB topics in exam questions for board certifications

Strategy:

National agencies that produce content for board certification examinations for internal medicine, infectious disease, family practice, pediatrics, and pulmonology should regularly include TB-related questions in both their testing and study materials.

Strategic Objective 3

Desired Outcome: Regular and ongoing inclusion of TB topics in exam questions for licensures

Strategy:

National agencies that produce content for medical and nursing licensure examinations should regularly include TB-related questions in both their testing and study materials.

Strategic Objective 4

Desired Outcome: Delivery of training for non-TB program physicians and nurses through dynamic, easily updated electronic formats such as websites, personal digital assistants, and other web-based products

Strategies:

National TB training and education agencies should develop and maintain web-based products suitable for individual use by non-TB program physicians and nurses. CME, CEU or other credits should be provided when possible. All materials should be kept accessible and available on an ongoing basis.

National agencies that represent or influence providers should recommend these products to individual physicians and nurses.

State and local TB programs should promote the use of these products to institutions and agencies that employ physicians and nurses.

Strategic Objective 5

Desired Outcome: Development, adoption, and promotion of core competency recommendations for non-TB program staff, and ongoing delivery of TB training and education to these audiences

Strategies:

National TB agencies should work with national agencies that represent or influence providers in the following categories to establish TB core competency recommendations on the continuing education of the following (non-TB program) titles or job descriptions: physicians; nurses; physician assistants; nurse practitioners; respiratory therapists; pharmacists; morticians; clinicians and non-clinical staff associated with HIV, substance abuse, or homelessness programs; clinicians involved with the health care of migrant workers; clinicians who serve foreign-born populations; civil surgeons and other U.S.-based clinicians involved in providing medical exams to persons applying for visas or U.S. citizenship; laboratorians.

National TB training and education agencies should incorporate TB core competency recommendations into the development of appropriate educational programs, curricula, and materials. Particular attention should be given to the development of curricula and materials suitable for regular inclusion in conferences. CME, CEU, or other educational credits should be provided whenever possible.

National agencies that represent or influence providers should regularly include curricula and programs based on the core competencies in their own conferences and meetings. These agencies should promote the same curricula and materials to local and regional provider groups for use in local and regional conferences and meetings.

State and local TB programs should promote the same curricula and materials to local and regional provider groups for use in local and regional conferences and meetings. TB programs should promote use of these materials to institutions and agencies that employ these providers.

VII. CLOSING STATEMENT

As the private sector takes on increasing responsibility for the care and treatment of patients who have or are at high risk for TB, it is essential for current providers and students planning careers in healthcare professions to receive appropriate TB training and education. They must be alert to its clinical symptoms and its epidemiological implications, and they must have the knowledge and skills required to effectively treat TB infection and active disease. A crucial aim is to raise the place of TB on the priority scale of private-sector providers and policy makers.

The strategic objectives presented in this paper are designed to improve the state of TB training and education for these target audiences in several important ways: by providing more education about TB in professional schools; improving TB education for physicians in training hospitals; advocating for recognition of TB's importance by certifying organizations; providing better opportunities for ongoing TB training and education for current providers; and directing focused TB education for decision makers and providers in managed care organizations.

The result, it is hoped, will be a more comprehensive and coordinated approach to TB training and education in the private sector and among students. Through this effort, significant progress can be made in the prevention and control of TB.

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POSITION PAPER • WORKGROUP 2

TUBERCULOSIS TRAINING AND EDUCATION FOR *Public Health Sector*

I. INTRODUCTION

This paper presents the tuberculosis (TB) training and education needs of providers working in the public health sector. In the United States, state and local health departments have legal responsibility for the prevention and control of TB in their communities. They are responsible for surveillance, contact follow-up, outreach programs, training and education, the monitoring and evaluation of TB case management, and especially completion of treatment. In some states, TB control programs also conduct overall planning and development of policy, and provide laboratory and diagnostic services. Through public hospitals and clinics, they also provide direct care and treatment for certain segments of the community's population, often those most vulnerable to infection. Health departments also provide TB education on an ad hoc basis in response to TB cases in schools, workplaces, and other settings. Public health workers are expected to maintain high standards of quality and high levels of expertise.

The goals of the workgroup were to examine the current scope of effort in the public health sector and to develop strategies that could lead to a more comprehensive and coordinated approach to TB training and education that would meet the varied needs and responsibilities of public health providers. In this paper, the workgroup:

- Profiles the target audiences, identifying the job categories in the public health sector that would be appropriate recipients of TB training and education
- Defines issues and problems relevant to TB training and education for the target audiences
- Catalogues programs, models, and organizations that have been successful in reaching these audiences, and resources available for this purpose
- Identifies the target audiences' training needs, as well as the barriers that impede efforts to meet these needs

- Presents strategic objectives, related to the goals of the Strategic Plan, that are designed to address the issues raised

The original version of this paper was prepared for the *National Strategic Plan for Tuberculosis Training and Education* and was published in that document in January 1999. For the current version of the Strategic Plan, the paper has been substantially revised and updated.

II. TARGET AUDIENCES

The target audience addressed by this paper is providers in the public health sector. The term “provider” is interpreted broadly here, encompassing:

- Administrators
- Clerical staff
- Clinicians (physicians and nurses)
- Communicable disease investigators
- Engineers
- Health educators
- Industrial hygienists
- Laboratory workers, including bench technicians
- Outreach workers
- Social workers
- Epidemiologists
- TB register staff

Management staff should also be targeted for TB training and education. Management staff includes:

- Health department leadership and decision makers
- TB laboratory leadership in public health departments
- Nursing and health/medical directors
- TB program managers

Providers in the public health sector have a variety of educational backgrounds, related in large part to their job responsibilities:

Public Health Sector

- *TB control program managers* are generally expected to have masters-level training in public health or equivalent experience; some also have medical professional backgrounds (e.g., medicine, nursing)
- *TB surveillance staff* are a mixed group, ranging from persons with formal public health training in epidemiology and biostatistics to clerical staff, whose core responsibilities include data collection, data analysis, and data entry
- *Communicable disease investigators and outreach workers* range from persons with college-level degrees or training in nursing or other fields to persons with a high school education
- *TB clinical staff* include physicians, nurses, nurse practitioners, and physician assistants
- *TB laboratory staff* include lab directors, managers, analysts, bench technicians, and administrative support staff
- *Other local public health department staff* (including staff from bioterrorism programs) might need to be cross-trained in TB and other communicable diseases

The demographics of the TB public health workforce are currently highly varied, but the need for further diversity still exists. In the U.S., the increasing prevalence of TB in foreign-born persons has resulted in clients from a wider range of cultural and linguistic backgrounds. Whenever possible, public health staff should be composed of individuals from a similarly broad spectrum of backgrounds in order to reflect this demographic trend in their clients.

In addition to TB workers, it is essential to target public health staff who work with high-risk clients in other units, such as HIV/AIDS programs, migrant and refugee health programs, homeless shelters, nursing homes, and correctional facilities. The unique TB training and education needs of providers working with these groups are addressed in other position papers.

III. DEFINING THE ISSUE

Tuberculosis rates and cases declined every year from the early 1950s until the mid-1980s. As TB hospitals closed in the 1960s and 1970s, follow-up and treatment for TB became primarily the responsibility of health departments, although in some areas many patients were increasingly treated in the private sector. Patients who needed inpatient care were sent to general hospitals, and the average period of hospitalization began to decline. In the mid-1970s, as TB incidence continued to wane, many areas became complacent about TB. Many states and cities redirected resources that had been allocated for TB prevention and control to other needs.

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In the mid-1980s, TB came back with a vengeance. TB cases increased by 20 percent from 1985 to 1992. Outbreaks of multidrug-resistant TB (MDR TB) occurred in hospitals and prisons with high death rates and transmission to healthcare workers.

In 1989, the *Strategic Plan for the Elimination of Tuberculosis in the United States*¹ was published and distributed by the Centers for Disease Control and Prevention (CDC)/U.S. Department of Health and Human Services' Advisory Committee (now Council) for Elimination of Tuberculosis (ACET). This document charged all TB control programs with the mission to eliminate the disease in the United States by the year 2010. It set out strategies for eliminating TB, which were based on the needs and responsibilities of the various groups involved in this effort. Health department TB control program staffs were one of these specified groups.

In 1992 and 1993, Congress substantially increased resources needed to re-establish the public health infrastructure to bring TB back under control. Thousands of additional full-time and part-time public health workers were hired and trained to supplement the existing TB workforce. Public health departments improved TB surveillance and TB outpatient treatment clinics. They also strengthened capabilities for patient treatment and follow-up, contact investigation, and related preventive therapy. Much of the responsibility for TB control fell on the health department leadership, laboratorians, clinicians, nurses, clerical and support staff, and outreach workers. Nationwide, emphasis was placed on better laboratory capabilities and patient follow-up (particularly directly observed therapy [DOT]). In addition, renewed emphasis was placed on improving contact investigation, as well as screening and preventive therapy for high-risk individuals. Consequently, health departments were able to better detect and treat persons with active TB and latent TB infection (LTBI).² TB cases declined every year from 1993.

In 1995, ACET published and distributed *Essential Components of a Tuberculosis Prevention and Control Program*³ to provide a model for TB control programs and to describe the essential components for elimination of TB in the U.S. This document provides a national standard for the assessment of individual TB control programs by TB control program managers, policy makers, and others who play a role in evaluating TB programs. In addition to defining the essential components of a TB control program, these recommendations emphasize:

- The importance of prioritizing TB control activities
- The coordination of care with other healthcare providers, facilities, and community organizations
- The use of alternative approaches to TB control (e.g., the expanded use of directly observed therapy and directly observed preventive therapy [DOPT])

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TB control program managers are charged with the task of attempting to incorporate each of the core components into program activities.

The TB picture is changing again. More and more states and individuals are looking to community-based health care providers and clinics, which are increasingly providing TB-related care and prevention services to persons with TB and those at risk for TB. Public health TB program managers and surveillance staff must work with these private providers to fulfill their responsibilities. Despite this trend, most communities, managed care organizations, and other healthcare providers continue to look to health departments for TB clinical expertise, laboratory services, patient follow-up (including DOT), and contact investigation.

The current climate of the public health system cannot be ignored when discussing the environment in which TB control activities are being performed today. Decreasing TB program budgets threaten the ability of state and local health departments to maintain adequate staffing levels and ensure that staff are adequately trained and supervised. Moreover, attention is shifting to newly funded bioterrorism programs. Although these programs may create an opportunity for public health agencies (e.g., they could potentially “upgrade state and local public health jurisdictions’ preparedness for and response to bioterrorism, other outbreaks of infectious disease, and other public health threats and emergencies”⁴), a crisis for TB programs could result as staff are pulled from the latter to work on the new bioterrorism programs.

Overall, the workers who practice public health are the most important element of our nation’s public health infrastructure and our ability to be prepared for the future. Yet the public health workforce—no matter how dedicated its individual members may be—is unevenly trained in the basic tenets of public health. This has been a long-standing problem in the field, in part because public health is a collective of many other disciplines. The lack of formal training in public health for a large proportion of the public health workforce can only hinder efficiency and progress in the fight against TB.

Furthermore, the U.S. is currently experiencing a nursing crisis that is unlike any of those in the past. The Robert Wood Johnson Foundation, which commissioned a study of the shortage in April 2002,⁵ states that the nursing profession needs to be re-envisioned so that it can emerge from the crisis stronger and in equal partnership with the profession of medicine. In the meantime, public health departments at the state and local levels—and therefore TB control and prevention programs—are negatively impacted. TB nurse positions often remain vacant for months, leaving programs struggling to meet their patients’ needs and their program objectives.

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It is critical that intervention be developed to address the shortage so that nursing leadership throughout the country can prepare the next generation of nurses to include experience in, and orientation to, the treatment and prevention of TB.

In 1998, the National Academy of Science's Institute of Medicine (IOM) undertook a study sponsored by the CDC to determine the feasibility of TB elimination in the U.S. The report of the study, published in 2000, was entitled *Ending Neglect: Institute of Medicine Study on the Elimination of Tuberculosis in the United States*.⁶ The IOM Committee's intent was to develop conclusions and recommendations regarding: 1) a framework to guide a national campaign to eliminate TB in the United States; 2) region-specific action steps required to work towards that goal; 3) research needs and priorities for national TB elimination; 4) information for healthcare providers and the public regarding the importance of vigilant and continued attention to TB control; 5) health plan (fee for service and managed care) responsibilities for TB prevention and control; 6) federal, state, and local public health policy makers' responsibilities and options regarding infrastructure needs; and 7) strategies for U.S. contributions to worldwide TB prevention and control, leading to worldwide TB elimination. Following are some of the key recommendations with implications for training and education that impact TB program staff:⁷

Recommendation 3.5: To promote a well-trained medical workforce and educated public the committee recommends that:

- The *National Strategic Plan for Tuberculosis Training and Education*, which contains the blueprint that addresses the training and educational needs for tuberculosis control, be fully funded.
- Programs for the education of patients with tuberculosis be developed and funded.
- Funding be provided for government, academic, and non-governmental agencies to work in collaboration with international partners to develop training and educational materials. (page 53, pages 61-121)

Recommendation 5.3: To promote better understanding of patient and provider nonadherence with tuberculosis recommendations and guidelines, a plan for a behavioral and social science agenda should be developed and implemented. (page 123)

There is a need to understand the determinants of behavior of healthcare providers and systems (e.g., health maintenance organizations), as well as the behavior of patients, and to improve methods for predicting and monitoring patient adherence and compliance with therapy, particularly in marginalized populations and immigrants. (page 130)

The chapter entitled "Lack of Knowledge About Need for and Importance of Contact Investigations" stresses three components of contact investigation education: provider education

(including public health), patient education and contact investigation, and the patient–provider relationship (pages 111-112). Attention is drawn to the fact that providers often lack the necessary training and experience to understand the need for a systematic approach to contact investigation. Public education of the patient who has symptoms of TB is important because a patient who have this knowledge are less likely to delay diagnosis, a delay that could result in transmission of the disease to uninfected persons. Also, the patient–provider relationship is often complicated by differences in attitudes and beliefs, as well as differences in social or cultural circumstances. To overcome all of these obstacles, providers need skills in patient assessment, interviewing, counseling, communication, and in the administration, reading, and evaluation of skin tests. (page 113)

CDC’s *Response to Ending Neglect*⁸ describes CDC’s strategy for achieving TB elimination, which takes into account the challenges, advances, and collaborations of the past, and builds on them. In “Section I. Maintain Control of TB,” the objective is to “maintain the decline in TB incidence through timely diagnosis of active TB disease, appropriate treatment and management of persons with active disease, investigation and appropriate evaluation and treatment of contacts of infectious cases, and prevention of transmission through infection control.” Many of the activities proposed as efforts to meet the objectives of the CDC strategy involve education and training. For example:

- Develop guidelines, models, and training materials for developing programmatic capacity to conduct cohort reviews (pages 23-24)
- Ensure that community-based healthcare providers are trained in the diagnosis and treatment of TB disease and latent TB infection (pages 24-25)
- Enhance the capacity of state and local TB control programs to conduct contact investigations, and ensure that infected contacts complete TB treatment (pages 26-27)
- Educate the public and train healthcare providers to maintain excellence in TB services (pages 33-34)

IV. SUCCESSES AND RESOURCES

The organizations, programs, projects, and materials described below are examples of successful approaches and resources for providing TB training and education to the target audiences listed in Section II:

Tuberculosis Education and Training Resource Website

Maintained by CDC, the *Tuberculosis Education and Training Resource Website* is an online searchable database of TB education and training materials and resources currently available for providers, patients, and the general public. It is an excellent place to begin when searching for TB training and education resources. The website evolved from the CDC's print document, the *Tuberculosis Education and Training Resource Guide*, and incorporates the resource inventory compiled for the first Strategic Plan. Listings include resources that apply to particular audiences, including persons who work in the public health field. The website address is:

<http://www.findtbresources.org>

All agencies involved in TB control are encouraged to make regular use of this website, both to list new products they have produced and to ascertain what materials are already available. This participation will make the website an even more effective means of conserving funds, coordinating efforts, and sharing resources. For more information, refer to Attachment C.

Other Training and Education Resources from CDC

Historically, many TB training needs have been anticipated and met by special training programs designed by CDC. In particular, training has been designed and offered for TB program managers. CDC's Division of Tuberculosis Elimination (DTBE) offers the *TB Program Managers Course* annually to TB controllers, program managers, public health advisors, and nurse consultants with programmatic responsibilities at the state, city, and regional (within a state) levels. The purpose of the course is to provide participants with information and the knowledge, skills, and abilities (KSAs) needed to manage a TB prevention and control program, and to assist them in developing a detailed action plan to implement these KSAs at their respective worksites in the form of a planning guide.

Federal funding to health departments was increased in 1992 to hire more public health workers in TB programs. This in turn created the need to develop accurate, effective training products for large numbers of entry-level public health workers. To enhance the effectiveness of TB prevention and control programs in the states by facilitating training for entry-level public health workers on TB transmission, pathogenesis, epidemiology, diagnosis, treatment, and infection control, CDC developed the following two products:

The first product, *Self-Study Modules on Tuberculosis*, which contained five modules, was developed to provide basic information about TB to new, entry-level healthcare workers. These print-based materials provide consistent information to all participants, regardless of the setting in

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which the modules are used or the differences in the knowledge levels of the local trainers. In 1999, DTBE published four more modules in the self-study series. The topics covered by these modules are: TB contact investigation, confidentiality, TB surveillance and case management in hospitals and institutions, and patient adherence. All nine modules are commonly used training materials in TB programs across the country. Various forms of continuing education credits are available for each of these modules. The modules are also offered as a web-based course, accessible at: <http://www.phppo.cdc.gov/phtn/tbmodules/Default.htm>

The second product, *A Satellite Primer on Tuberculosis*, was a five-session, interactive satellite-broadcast course designed to enhance the information in the self-study modules. It was broadcast in 1995 to 575 downlink sites in 47 states, reaching over 6,000 participants. This course was developed through a collaborative process. The collaboration included the University of Alabama at Birmingham School of Public Health; the Division of Tuberculosis Elimination and the Division of Media and Training Services of the Centers for Disease Control and Prevention; and the Alabama Department of Public Health. A videotape version is still available.

CDC has also produced a *Core Curriculum on Tuberculosis*. This curriculum is revised and updated on a regular basis (currently in its fourth edition). Continuing education credits are available for this curriculum as well.

CDC has developed other education and training resources, including TB elimination workshops, TB infection control products, Mantoux testing products, patient education materials, a contact interviewing course, and provision of education and training technical assistance.

CDC regularly publishes American Thoracic Society (ATS)/CDC and CDC/ACET statements and guidelines on diagnosis, treatment, and control of TB, as well as slide sets and other print materials, such as articles from *Morbidity and Mortality Weekly Report* (MMWR), reports, and fact sheets. Recent guidelines, which are useful in initiating training efforts, include: *Treatment of TB* (2003); *Environmental Infection Control in Health Care Facilities* (2003); *Progressing Toward Tuberculosis Elimination in Low-Incidence Areas of the United States* (2002); and *Targeted Tuberculin Testing and Treatment of Latent Tuberculosis Infection* (2000).

CDC also provides training and education through its website. Many publications are available for viewing and downloading, and print versions may be ordered online. The website address is: <http://www.cdc.gov/tb>

TB Education and Training Network

One outcome from the first round of strategic planning for TB training and education in 1998 was the recommendation to establish a network of persons involved in planning, producing, providing, and promoting activities and materials in this area. As a result, the CDC-sponsored TB Education and Training Network (TB ETN) was established in 2001. With more than 400 members, TB ETN is helping to build a cadre of TB educators and trainers with improved skills and abilities, knowledge of available resources, and ability to serve as a resource for high-priority needs, such as TB outbreaks and implementation of new guidelines. TB ETN sponsors annual meetings and workshops on health education, training, and communication issues, and has established the TB-Educate Listserv to aid communication and build community among those involved in TB education and training. For more information, refer to Attachment C.

Model TB Centers

In response to the resurgence of TB in the mid-1980s, CDC began funding three Model TB Centers in 1994. Since that time the Model TB Centers—the Francis J. Curry National Tuberculosis Center (California), the Charles P. Felton National Tuberculosis Center at Harlem Hospital (New York), and the New Jersey Medical School National Tuberculosis Center (New Jersey)—have developed many resources for training public sector providers, including:

- ***Training courses*** that target all public sector TB providers and staff, including physicians, nurses, case managers, communicable disease investigators, surveillance staff, program managers and supervisors, and outreach staff. For jurisdictions that have dedicated training staff, courses are sometimes developed in a train-the-trainer format in an effort to build the training capacity of state and local TB program staff
- ***Print materials***, such as handbooks, manuals, and self-study modules for healthcare providers; TB information cards, posters for physicians on TB treatment regimens; guidelines for implementing DOT and DOPT, improving contact investigation performance, diagnosing latent TB infection, and preventing *M. tuberculosis* transmission in institutional settings; and training materials for numerous target audiences, including school nurses
- ***Distance-learning products*** in various formats (CD-ROM, videos, web-based interactive modules) addressing such topics as TB contact investigation, confidentiality, adherence to treatment, infection control, engineering controls, quality assurance, and clinical issues
- ***Telephone consultation*** by TB experts for public and private healthcare providers

TB Controller Associations

The National TB Controllers Association (NTCA) holds an annual meeting for the national TB control community. Widely attended, it offers a significant opportunity for professional development of TB program staff. Recent conference themes include maintaining the momentum with TB case management and treatment; program evaluation; and contact investigation and outbreaks. The National TB Nurse Consultant Coalition (NTNCC), which meets annually during the NTCA meeting, also provides educational opportunities for its constituents.

Some regional TB controllers groups—such as California’s, the Northeast’s and Southeast’s—have been in existence for some years. A number of new groups have recently emerged, including Four Corners, Midwestern, Southwest, Northern Rocky Mountains, and Great Lakes. In addition to the coordination and networking activities of these groups, some offer annual opportunities for their members to participate in training and education activities.

Tuberculosis Curriculum Coordinating Center

The national TB Education Consortium is based at the University of California San Diego School of Medicine and has been funded by the National Heart, Lung, and Blood Institute of the National Institutes of Health for five years as the Tuberculosis Curriculum Coordinating Center (TCCC). The TB Education Consortium is a collaborative group of 26 partner schools and over 30 partner organizations initiated in the fall of 2003. Participants are focusing on curriculum development and improvement in health care professional schools throughout the U.S. (programs that provide basic education for students of medicine, nursing, pharmacy, public health, respiratory therapy, medical technology, and physician assistance programs). Curriculum development includes innovative web-based technology as one way of disseminating information, as well as more traditional methods, such as abstracts and presentations at professional meetings and publications in appropriate journals.

National Jewish Medical and Research Center

The National Jewish Medical and Research Center has traditionally trained expert TB clinicians and is known worldwide for its TB training. The Center provides training for fellows, residents, medical students, and postdoctoral candidates; offers a lecture course on TB on a regular basis; and provides a telephone consultation service for physicians. It also serves as a training ground, providing extensive opportunities for fellowships for post-degree candidates. The Center offers a training course on TB clinical management that is attended by many health department clinicians.

State and Local TB Programs

State and local health departments and TB programs offer a variety of opportunities and resources for TB training and education. Some states (e.g., Indiana, Mississippi, New York, and Washington) hold annual or other regular TB conferences or symposia. California provides contact investigation and interview training throughout the state on a regular basis.

A number of states provide technical assistance on TB control to all counties. For example, Washington State TB program staff—which include a physician consultant, three nurse consultants, and three outreach workers—provide TB technical and program consultation services to 34 local health jurisdictions, each of which has independent authority related to TB prevention and control. Program evaluation and recommendations regarding TB case management and treatment of LTBI are offered to local health jurisdictions, schools, clinics, long-term care facilities, correctional facilities, homeless shelters, and other public and private agencies in the state. Consultation is provided to local health TB program staff in planning, implementing, and evaluating TB programs, and in distributing nursing services according to local needs. In addition, ongoing quality assurance services are provided to ensure that practice standards for TB case management and contact investigation are met (the program initiated a cohort review process—based on New York City’s model—in May 2003).

Likewise, the Florida Bureau of Tuberculosis and Refugee Health provides direct technical assistance and professional consultation in the prevention and control of TB to all county health departments, the professional community, public organizations, and the citizens of Florida. Headquarters staff comprise multilevel disciplines to offer nursing consultation, field services support, technical assistance, surveillance, epidemiology, data management, outbreak response, educational materials, and appropriate referrals to its constituents.

The New York City Bureau of TB Control conducts training for entry-level public health advisors when needed. This extensive four-week course prepares the TB field worker to conduct all TB field-related activities.

Many state and city health departments have used the *Self-Study Modules on Tuberculosis* and similar products, or have developed their own training programs for public health staff, particularly New York City and the larger western and southern states. Some states and cities effectively use TB case conferences and cohort reviews as training mechanisms for clinical, nursing, and outreach staff.

A number of states offer training courses, interviewing classes, and conferences. Examples include:

- California's Interviewing Skills for TB Professionals course
- Illinois' Immunization and Infectious Disease Conference
- Massachusetts' TB Today course
- Mississippi State TB Conference
- North Carolina's Tuberculosis-Respiratory Disease Institute
- South Carolina's TB Today course
- Skin testing certification courses offered by various states

Resources for Laboratorians

TB lab testing has been viewed as specialized or different from other lab testing because TB takes longer to grow than other bacteria, methods are different from those used for other bacteria, and safety procedures are more stringent to protect the worker from these Class III pathogens. As TB diagnosis has been decentralized, so has the testing. This has resulted in more microbiology generalists performing specialized testing and a broader population being involved with laboratory reporting issues. Several years ago, CDC restructured its training branches and no longer consistently offers specialized bench training in mycobacteriology methods.

In some states, the laboratories look to infection control organizations such as Association of Practitioners of Infection Control (APIC) to do in-services. In other states, such as California, the National Laboratory Training Network (NLTN) has offices in the state laboratory building. There is a statement of support for NLTN's work and TB training for laboratorians in the state's *State Plan for Elimination of TB*. The Association of Public Health Laboratories (APHL) has also helped increase TB laboratory capacity.

The NLTN (sponsored by APHL and CDC) trains lab staff. Their subsidiaries, Area Laboratory Training Alliances (ALTA), group the country into areas. Training of many kinds (from slides that can be viewed in the workplace up to and including wet lab courses) is available. ALTAs specialize and support each other to broaden offerings.

Driven by the May 2000 IOM report on TB and by increasing imperatives for high-quality, cost-effective lab services in an environment of declining case rates and shifting public health priorities across the U.S., APHL and CDC commissioned a Task Force on the Future of TB Laboratory Services to define and address the laboratory issues critical to TB laboratorians, public

health officials, and health care providers. The primary goal of the task force is to improve TB control through optimal use of laboratory services and effective reporting and tracking of information. This purpose is to be achieved by using basic principles of good laboratory and clinical practice to guide the creation of specific benchmarks for jurisdictions to follow, thereby ensuring that state-of-the-art methods are efficiently utilized to deliver timely and high-quality TB lab services to providers and health departments.

Other Training and Education Resources

Other professional organizations that offer TB training and educational opportunities through their annual meetings include ATS, the International Union Against TB and Lung Disease, the American Lung Association (ALA), the Infectious Disease Society of America, the American Academy of Pediatrics, and the American College of Chest Physicians.

New technologies, including CD-ROMs, videos, satellite down-link equipment, and video and audio conferencing, are available. There are knowledgeable and capable TB staff and medical consultants in many states and localities who provide telephone and ad hoc consultation. TB experts are willing to speak at conferences. In some instances, local affiliates of the ALA serve as a resource and help keep TB on the agenda.

V. NEEDS AND BARRIERS

Current information shows that many jurisdictions conduct some training. According to the NTCA, however, the capacity for training and education in many local and state TB programs remains inadequate despite the resources that exist. As resources are scarce, training activities frequently are targeted to small numbers of participants and carried out on an occasional, rather than an ongoing, basis.

In 1998, the membership of NTCA and the National TB Nurse Consultants Coalition (NTNCC) were surveyed as part of the planning process for the first Strategic Plan. In 2001, the three Model Centers sponsored a second TB training and education survey, identifying NTCA members and TB programs (state and big-city) across the country as respondents. As part of the 2003 strategic planning process, another survey on TB training and education, fielded as a brief, web-based questionnaire, was sent to members of NTCA and NTNCC, as well as to subscribers of the TB Educate Listserv. The survey's objective was to present an overview of the national state of TB training and education and to provide data comparable to the earlier surveys when possible. A

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report from the survey results is included in this document as Attachment B. Results of the 2003 survey relevant to this position paper were as follows:

- Respondents reported a high utilization of classroom-style lecture with print and video as supporting elements
- Respondents believed that in only a few key audiences are a majority of individuals receiving appropriate TB training and education
- Respondents believed that penetration of TB training and education is strong among TB program audiences, but they think that significant percentages of important external audiences are not being reached—despite the general availability of core TB topics
- Half of the responding NTCA and NTNCC members were aware of the Strategic Plan, and only a quarter of them reported using it

Recent program research has led to new programmatic innovations, which, while having great potential for improving TB programs, provide new challenges for the training and education of the public health workforce. For example:

- There is increasing emphasis on program evaluation for the purposes of continuous quality improvement, accountability, and the building of the science of public health. However, many public health practitioners have little knowledge of evaluation principles and limited training or experience in planning and implementing program evaluation activities.
- Likewise, there is an increasing emphasis on the use of data and research to better understand what works best to improve the public's health.⁹ The need exists to strengthen ability of TB control staff to evaluate effectiveness, accessibility, and quality of personal and population-based health services.
- Lastly, there is an increasing emphasis on developing consistent standards for public health agencies and professionals.¹⁰ This issue is highly relevant for the TB community because few, if any, TB-specific competencies and performance standards have been developed nationally for TB staff and providers. Although some state and local health departments do have standards, many do not. The absence of guidelines diminishes the impact of TB training and education efforts, at both the individual and program levels.

As mentioned earlier, few if any core competencies have been developed for specific professional groups. The development of such guidelines by a national advisory group, and their integration into public health TB programs, could have a tremendous effect on training and education outcomes. Educational activities could then be developed using the defined core competencies as a framework for developing curricula for particular audiences.

Additionally, the planners of training activities may fail to take advantage of existing materials and resources, usually because they are unaware that these resources are available. A number of activities and resources have been developed to address this lack of awareness, including the TB ETN, TB Educate Listserv, CDC's *Tuberculosis Education and Training Resource Website*, and regular updates via conferences, newsletters (e.g., *TB Notes*), and mailings of materials to TB programs.

Another critical issue is the lack, at the state and local level, of skilled trainers who have time dedicated to education and training. Most TB control programs do not have professionally trained health education staff to lead training and education activities for their own staff or for local private providers. When such activities do occur, they are often developed and conducted by staff who have competing, frontline responsibilities in TB control. In such circumstances, training may be assigned a lower priority and have a lower level of quality than it should.

Solutions may require regional support. The need for regional support may be especially great among programs that are small, that are located in low-incidence jurisdictions, or that are experiencing high staff turnover. Also, regional support for on-site training of TB program staff could enable programs to provide local training to private-sector healthcare providers regarding such matters as improvements in TB diagnosis, case reporting, targeted testing, and treatment needs. The enhanced access to educational materials and technical assistance has been positive, but resources for direct, face-to-face training are still needed.

Three immediate solutions present themselves as means of making on-site training available. The first is to continue the development of the TB ETN. This network has the potential to enhance the capacity of designated training and education staff in TB control programs. Enhanced local capacity, in turn, supports local staff and underpins educational outreach to private physicians and other providers likely to need TB training and education.

A necessary and complementary solution is to increase the funds allocated to TB programs for training and education. With additional money, TB programs, especially those in small or low-incidence jurisdictions, would be better able to concentrate staff resources on training needs without sacrificing other aspects of ongoing TB control.

The third potential solution is to expand the Model Center system to accommodate all regions of the U.S. (similar to the 13 regional STD/HIV Training Centers located throughout the country). Expansion would allow Model Center staff to travel in narrower geographic areas, supplementing regional training by delivering on-site training to staff in the field. The NTCA has recommended

that the CDC review and consider this model, which they see as a worthy one because so many TB control programs do not have the funds to send staff to off-site training.

Beyond an immediate expansion of the Model Centers as a resource for on-site training, further enhancement of the system should be considered. NTCA has recommended that there be an external review of Model Centers to define the TB training and education needs in the U.S. and the role of the Model Centers in this process. It was suggested that the review should assess TB education and training in comparison to the training provided on sexually transmitted diseases and HIV through the National Network of STD/HIV Prevention and Training Centers, in order to identify useful methods and potential areas of collaboration.

Finally, the need for expanded availability of medical expertise and consultation must be addressed. A number of “warm-line” services currently exist to provide clinicians with phone, fax, or e-mail access to TB experts when detailed treatment questions arise. These efforts should be quantified and expanded, in consultation with NTCA and NTNCC. As with other forms of TB training and education, medical consultation should be regionalized through a combination of federal and multi-state initiatives to provide better access to and more efficient utilization of clinical, epidemiological, and other technical services.

Needs of Specific Audiences

TB Clinical Staff. One need is comprehensive TB training for all public-sector nurses and physicians, especially in health departments who provide TB care. The training should include:

- Advanced diagnostics
 - Diagnosis of active TB disease (pulmonary and extrapulmonary) and LTBI
 - Laboratory: detail on smears, cultures, susceptibilities; rapid methods and analysis of results; pathology reports
 - X-ray: review of typical and atypical presentations of disease; use and value of CT scans; utility of follow-up x-rays
- Treatment recommendations, including the selection of drugs for treatment of TB disease and LTBI, drug resistance, drug interactions and side effects, DOT strategies and treatment outcomes, and treatment failure
- Other topics, including promotion of patient adherence, infection control practices, contact investigation, case management, skin testing, Bacille Calmette-Guerin vaccination, the role of the health department in TB control, cultural competency, and HIV counseling and testing skills

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Public Health Nurses. Public health nurses (PHNs) need most of the same information as the TB clinicians, but to a lesser extent. As the most common provider to TB patients in the field, it is imperative that they be well trained in almost all facets of TB care and control. In addition to the topics listed above for TB clinician staff, PHNs need training on:

- High-risk contact investigation and follow-up
- Training and working with communicable disease investigators, outreach workers, social workers, epidemiologists, and other allied health professionals
- Strategies of working with foreign-born populations

Effective TB control increasingly relies on interdisciplinary teams to work with at-risk communities. However, a recent study of the PHN workforce in California found that “the majority of PHN staff and managers are aware of tensions between PHNs and other groups of public health workers based on overlapping duties or role definitions. Staff and managers most often express an awareness of PHN staff tensions with community health outreach workers, communicable disease investigators, and medical assistants.”¹¹ Thus, it is important for the training and education of allied health professionals and PHNs to provide staff with the skills and abilities to function effectively as a team and to recognize the unique skill set that each profession brings to TB control efforts. The study also underscores the need for program managers to clearly define roles and responsibilities to help prevent tensions between co-workers.

TB Program Managers. As successful models for working with managed care continue to evolve, it will be important to create training that will give TB program managers the skills they need to work with the managed care organizations on developing collaborative efforts. With the increase in managed care organizations in the United States, and more persons with or at risk for TB being treated by these organizations,¹² it is essential that TB program managers ensure that the critical components of TB prevention and control are in place to prevent cases from occurring and drug-resistant disease from developing because of inappropriate treatment and follow-up.

Health department TB controllers and program managers need a solid understanding of basic TB transmission and pathogenesis, as well as clinical care and control issues. In addition, they need training and skills in epidemiological principles; biostatistics; risk management; program evaluation, including cohort review process; staff development, including use of paraprofessionals; fiscal management; cultural competency; general program planning; policy development; performance management; strategic planning; and leadership.

It would also be useful for TB program managers to receive training to help them develop skills in coalition building and in public awareness and communications activities directed toward the general public and policy makers.

Communicable Disease Investigators. Communicable disease investigators (CDIs) play an increasingly prominent role in TB control programs nationwide. Since some TB programs hire CDIs to conduct contact investigations and other field activities, CDIs are key players on the TB control team.

Few formal CDI training programs exist for CDIs working in TB control. Instead, most learn on the job, shadowing their colleagues and supervisors. Standardized CDI curricula that match the CDI professional scope of practice are needed and should include a rigorous field component. Suggested topics to include are:

- Introduction to public health
- Introduction to epidemiology
- TB 101 (e.g., transmission and pathogenesis, diagnosis and treatment)
- The role of the CDI on the TB control team
- Ethics and confidentiality
- Outbreak investigation
- Phlebotomy and tuberculin skin testing certification (where permitted by law)
- Introduction to health care delivery and financing
- Infection control
- Public health and the law
- Interviewing techniques to identify and locate TB contacts
- Field investigation strategies and field safety
- HIV counseling, testing, and referral
- Patient education
- Adherence-enhancing interventions
- Cultural aspects of TB control

California is one state that is working to promote the use of CDIs in TB control programs. The state TB program's plan is to standardize and improve the public health education and training of CDIs working on TB control through the following activities: development of core competencies and practice standards; developing training curriculum and materials; developing tools and methods for promoting ongoing assessment and development of knowledge, skills and abilities; and developing a plan for promoting, implementing, and sustaining the training and use of CDIs

in California TB control programs. The products from this initiative could benefit TB control programs throughout the country that have an interest in developing the role of CDIs.

Outreach Workers. Outreach workers play a critical role on the TB control team and their impact can be maximized by ensuring that all members of the team understand and respect this role.

In an evaluation of TB outreach workers, both outreach workers and their supervisors were asked what knowledge and skills they felt were essential to the effectiveness of outreach worker activities. These included:

- Knowledge of TB
- Knowledge of TB case management
- Confidentiality
- Treatment side effects and when to report them
- Communication skills
- Knowledge of laboratory and packing requirements for shipping lab samples
- Knowledge of local health care and social service systems
- Knowledge of the patients' language and culture
- Knowledge of other diseases and how they relate to individual patients¹³

Health Educators. Health educators play a critical role on the TB control team. To carry out their role effectively, health educators must have strong presentation and training skills, as well as knowledge of:

- Systematic health education planning processes
- Development of educational materials, and adaptation and modification of existing materials
- Training and education resources and how to access them
- Methods for conducting evaluations of training programs

Laboratories. The APHL/CDC Task Force on TB laboratory services recognizes that there is great variation in the need for laboratory services among the nation's TB-diverse state and local jurisdictions. These needs must be identified and addressed in specific jurisdictional strategic plans, created by states and local programs with guidance developed by the Task Force, and using a systems approach. The aim is to ensure that laboratorians are appropriately trained in such areas as quality and proficiency of laboratory services; appropriate use of new technologies; development of repositories of isolates and fingerprinting capability; timely flow of information

in all directions (provider, public health, laboratory); clinical TB; and appropriate use of TB laboratory testing.

Elements of a jurisdiction's plan would be subject to an ongoing performance assessment that uses specific outcome measures developed by the Task Force. These might include items such as definitions of appropriate turnaround times for smears, cultures, and drug susceptibility testing; appropriate uses of nucleic acid amplification test; and criteria for using molecular epidemiologic tools like DNA fingerprinting. Another criterion should require that all MDR TB susceptibility testing be performed by lab analysts who have been trained to perform both primary and secondary drug susceptibility testing.

Finally, it is critical for laboratory workers to understand the role they play in the big picture of TB control. They should be invited to basic TB training courses, as other health care workers are, and encouraged to participate in TB program staff meetings, case conferences, and regional or statewide TB meetings. Laboratory training needs include:

- Wet lab training (as opposed to didactic or book-learning techniques)
- Technical training, especially in new methods (including genotyping)
- Risk assessment training for the safe handling of TB in the laboratory

Other Needs

Other types of training activities and resources needed for the public health sector include:

- Sufficient entry-level training and continuing educational updates at least yearly
- Sufficient ongoing training for experienced staff and supervisors to support new interventions (critical to the effective training of entry-level staff)
- A comprehensive TB procedure manual (local and national standards)
- Standardized curricula based on consensus core competencies, including trainer materials and tools, to facilitate training activities
- Training materials and support geared to providers in low-incidence areas and to those who encounter TB cases only occasionally
- Resources dedicated to training and education staff and activities
- Incentives for training, including resources to promote physician training
- Mandates for states or regions to provide training
- External funding and assistance for local training
- Technical assistance in training from Model TB Centers

- TB experts to teach in areas where there are no training programs
- A national DOT compliance standard and training to support it
- Curricula and materials to address the challenges of working with the foreign-born population, such as culture and language
- HIV/TB training, counseling and referral

In addition, there are training gaps that should be addressed. While TB case management has become more intensive, surveillance for TB in some instances has become weaker. For example, there are high rates of missing data on many of the risk variables that should be collected on each TB case. More emphasis should be placed on training program managers and surveillance staff in methods for performing good TB surveillance, including active surveillance and validation.

Barriers to TB Training and Education

There are a variety of barriers that impede effective TB training and education for public health workers:

Individual barriers, which can include:

- The perception by many staff that they do not need training
- Lack of time for training or self-study
- Lack of knowledge of how or where to access training
- Competing priorities for providers (e.g., administrative duties, non-TB clinical responsibilities, and new public health priorities, such as bioterrorism)
- Travel restrictions due to funding shortages
- A lack of incentives for training

Institutional barriers, which can include:

- Lack of core competencies or practice standards for individual professional groups working in TB control
- Lack of TB education in medical and nursing school curricula
- Lack of user-friendly TB guidelines and recommendations
- Lack of culturally appropriate training materials
- Lack of curricula that reflect the overall responsibilities and training needs of CDIs in TB control

- Supervision and other QA systems are not fully developed or standardized
- Multiple commitments of programs that deal with infectious diseases (infection control) and communicable diseases
- Lack of a standardized language application (Informatics) that would allow partners in TB control to communicate with each other more effectively
- Inadequate local policies and procedures, which are often outdated and do not consistently reflect or reinforce the implementation of performance standards and new skills obtained from training and education
- Lack of qualified and dedicated TB educators in state and local programs who can devote significant time to TB training and education
- Failure of many local TB training and education opportunities to include competence testing during or at completion of the program
- Duplication of effort
- Decreased funding (result of level funding) for TB programs; training is often first to be cut
- Few private funding sources for TB programs outside of state and federal governments
- Lack of funding for ongoing training, beginning at the entry level
- Lack of regionally located Model TB Centers

There are also barriers to creating new training initiatives. An organization must take the lead and compile new information to develop effective training based on local needs. Specific methodologies might need to be tested and refined, as these are important components of the training development process and should not be overlooked. However, program staff might not have the time, skills, or resources to ensure these activities are effectively implemented.

Another type of barrier occurs when there are conflicting opinions between local TB control experts and the CDC about specific aspects of TB control. While CDC recommendations are based on the best scientific evidence available, they are generally intended to be adapted to local epidemiological experience. The challenge arises in creating training and education materials for a national audience, given these local differences. For example, California has guidelines for interpreting tuberculin skin test results that differ from national guidelines. As a result, TB control programs in California must either disseminate CDC materials that do not reflect state guidelines, which may confuse providers, or they must modify materials to reflect state guidelines, which is labor- and cost-intensive. Additionally, individuals who obtain this information directly from CDC are not made aware of the differences.

Public Health Sector

Copyright restrictions pose a different type of barrier. Some training and educational materials have copyright restrictions, which may limit access to needed materials. Additionally, while many educational materials are now available on the Internet, a large number of local health departments still do not have computers, and therefore do not have Internet access.

Staffing issues. Following the most recent resurgence of TB, there was an increase in TB training, education, and staff in some areas that received additional federal funding. As TB rates have leveled off, so has funding in these areas. TB programs will be expected to use existing funds for educational activities that did not previously exist. Difficulties occur when these funds have already been committed to other local TB program priorities. Additional funding is needed to allow states, cities, and other jurisdictions that do not have professional health educators and organized educational programs the opportunity to establish such activities.

The responsibility for much of today's training of public health workers rests with the key state or big-city TB management team, which typically could include the TB controller, TB medical consultant, nursing consultant, program manager, and chief laboratory TB microbiologist. Most of these individuals have other full-time, non-training responsibilities. They are often too busy to adequately plan, implement, or evaluate training activities for their staff, and they may not have the training expertise to do so.

There is an overall shortage of staff, which impacts training. In many areas, high turnover of local TB-related staff, especially on the front line, necessitates ongoing training. Yet in some large, high-incidence jurisdictions, one full-time staff person is expected to do training and consulting for TB staff and all other providers in the county, both public and private. Without support staff, the trainer has to do all the advertising, scheduling, mailing, copying, arrangement for continuing education units, and preparation of handouts. Because there is no back-up staffing, it is difficult for staff to get time off to attend training activities. Often, staff can participate only if the level of available staffing allows and supervisors approve.

In many states, one-on-one training has been deferred to the supervisor as part of orientation of their staff. Because new employees begin work at various times, training can be inconsistent. Furthermore, supervisors may not possess the appropriate knowledge and skills themselves to model to their staff.

Funding and travel restrictions. Limited funding, limited staffing, travel restrictions, and the relatively low priority placed on training are problems at times at all levels: federal, state, and local, in both the public and private sectors. One example is statewide restrictions imposed by a governor's office prohibiting out-of-state travel, which keep health department staff from

attending necessary training. When funding cuts occur, training and related costs are often cut because they are considered less important than providing services or maintaining staffing levels.

Training barriers for laboratorians. Laboratorians also encounter barriers to effective TB training. Key state officials who have funding or decision-making responsibilities do not fully understand the laboratory's role in TB elimination. Laboratorians also have difficulty attending technical training because of travel restrictions.

VI. STRATEGIC OBJECTIVES

The strategic objectives below are suggested as specific steps that can be taken toward the accomplishment of the five broad goals that have been defined for the *National Strategic Plan for TB Training and Education*. Considering the overarching aims of the Strategic Plan and the current state of TB training and education efforts for the public health sector, this workgroup has selected the following objectives as reasonable and feasible priorities for the next five years. They provide a means of beginning to address the issues identified in Section V, Needs and Barriers.

By intention, the strategic objectives do not specify who will do what. Instead, they describe a desired outcome and identify the types of organizations that would need to be engaged if the strategic objective is to be achieved. The workgroup charges the Implementation Committee of the Strategic Plan to secure commitment and action from the necessary agencies during the coming five years.

Strategic Objective 1

Desired Outcome: Development, adoption, and promotion of TB core competency recommendations for state and local TB program staff, and ongoing delivery of TB training and education to these audiences

Strategies:

National TB agencies should work with state and local TB programs to develop consensus core competency recommendations for the following types of TB program staff: DOT outreach workers; disease control investigators; health educators; nurses; physicians; and program managers.

National TB training and education agencies should develop training courses, activities, and materials keyed to the consensus core competency recommendations.

State and local TB programs should adopt the recommendations and make opportunities for staff to receive appropriate training and education.

Strategic Objective 2

Desired Outcome: Increased TB education for medical students, nursing students, and other students planning healthcare careers

Strategies:

National TB agencies should work with national agencies that represent medical schools, nursing schools, and allied health schools to produce and promote local adoption of appropriate and standardized TB curricula and materials for each discipline.

National agencies that represent medical residency programs in internal medicine, infectious disease, family practice, pediatrics, and pulmonology should do the same.

Strategic Objective 3

Desired Outcome: Dedicated training staff in state and local TB programs to regularly deliver TB training and education to the staff of state and big-city TB programs, as well as to external priority audiences

Strategies:

Funders should support dedicated training staff in each state and big-city training program.

TB programs should use dedicated training staff to keep program staff up-to-date and to deliver training and education to local priority target audiences, such as staff in local correctional facilities, HIV programs, addiction programs, homelessness programs, hospitals, and nursing homes, etc.

Strategic Objective 4

Desired Outcome: Support for an expanded national network of training centers

Strategy:

Funders should maintain and expand the Model Center system so that it becomes accessible to TB programs throughout the country.

Strategic Objective 5

Desired Outcome: Support for a centralized planning body to implement the *National Strategic Plan for TB Training and Education*

Strategy:

Funders should provide consistent, ongoing administrative and logistical support to the Implementation Committee of the Strategic Plan and provide for the inclusion of representatives from target groups in addition to representatives from producers of TB training and education.

Strategic Objective 6

Desired Outcome: Support for an expanded international network for TB training and education professionals

Strategies:

Funders should maintain and expand the TB Education and Training Network (TB ETN), an existing network for individuals engaged in TB training and education (described earlier in this paper).

State and local TB programs and other relevant organizations involved in TB training and education should promote participation in the TB ETN by appropriate staff.

Strategic Objective 7

Desired Outcome: Support for a central database of TB training and education resources

Strategies:

Funders should maintain and expand the CDC's *TB Education and Training Resource Website* as an up-to-date searchable database and a printed reference.

National TB agencies, state and local TB programs, and other organizations that produce or use TB-related materials should refer regularly to the *Resource Website* to identify available resources and prevent unnecessary duplication. Similarly, they should contribute to the *Resource Website* by providing the organization that maintains it with details about any materials and resources they develop.

Strategic Objective 8

Desired Outcome: Development and adoption of core competency recommendations for laboratorians

Strategies:

National TB agencies should work with national agencies that represent or influence laboratory staff to develop, adopt, and promote recommendations for core competencies.

National TB training and education agencies should work with national laboratory training and education agencies to develop training courses, activities, and materials keyed to the consensus core competency recommendations.

State and local TB programs should adopt the recommendations and make opportunities for staff to receive appropriate training and education.

Strategic Objective 9

Desired Outcome: Increased presence of cultural competency as an integrated portion of training curricula delivered to TB Program staff

Strategies:

National producers of TB training and education materials should produce, maintain, and make available regularly updated, culturally appropriate materials that address TB issues.

National TB training and education agencies should incorporate cultural competency into training courses.

State and local TB programs should make opportunities for staff to receive appropriate training and education.

VII. CLOSING STATEMENT

The field of TB treatment and control is a unique specialty practice within public health. Care should be taken to assure that training and education programs and materials for this workforce are of high quality and accessible in order to meet the needs of its workers. While great advances have been made in TB training and education in the last decade, resources are still needed to improve TB and laboratory staff education at both state and local levels.

Public Health Sector

A document published in 2003 by the Institute of Medicine, entitled *Who Will Keep the Public Healthy? Educating Public Health Professionals for the 21st Century*,¹⁴ clearly delineates both the role of public health professionals and the need for adequately training this sector of the workforce. This IOM report provides a framework and recommendations for, among other things, strengthening public health practice through redesigned graduate public health education as well as education of the public health workforce. The report says that local health jurisdictions have critical needs for upgrading the skills of staff and for training new professionals, and that addressing these needs falls upon the jurisdictions themselves. The report also clearly states that it is fundamentally the responsibility of the federal health agencies to provide support for these activities, and specifically recommends that funding be increased to support the training and education of the public health workforce. An influx of this type of funding could significantly impact the country's progress toward TB elimination, and should be seriously pursued, and advocated for, by organizations such as NTCA, NTNCC, ACET, the National Coalition to Eliminate TB (NCET), and other public health organizations that share a vested interest in this effort.

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POSITION PAPER • WORKGROUP 3

TUBERCULOSIS TRAINING AND EDUCATION FOR
Correctional and Other Detention Facilities

I. INTRODUCTION

This paper discusses the tuberculosis (TB) training and education needs of persons involved with correctional and other detention facilities, including health care providers, staff, inmates, and decision makers. The workgroup was charged with identifying resources and successful models for providing training to this sector, as well as the sector's TB training needs and barriers to effective TB training and education. This paper demonstrates the need for strategies specifically tailored to correctional and other detention settings.

Jails, prisons, youth facilities, or other detention centers are high-risk settings for TB transmission because they are congregate, close-quartered living situations, and because inmates or detainees frequently have risk factors for infection. Health care in correctional and other detention facilities has a significant impact on individual and public health, and these institutions provide a unique opportunity for cost-effective interventions to prevent and control TB in a high-risk population. Properly focused, these interventions can significantly improve the health status of the larger community, whereas poor correctional health care can harm the individual inmate or detainee, the correctional worker, and the community at large. Appropriate interventions differ depending upon the duration of incarceration. In jails and other short-term facilities, rapid identification, isolation, and treatment of active TB are paramount. In long-term facilities, such as prisons, an additional goal is to identify and treat latent TB infections (LTBI). In all settings, appropriately trained and supported staff are the key to successful TB control.

Correctional and Other Detention Facilities

The goals of the workgroup were to examine the current scope of TB training and education efforts in correctional and other detention settings and to develop strategies that could lead to a more comprehensive and coordinated approach to such efforts for these target audiences. In this paper, the workgroup:

- Profiles the target audiences, identifying the job categories in the provider population that would be appropriate recipients of TB training and education
- Defines issues and problems relevant to TB training and education for the target audiences
- Catalogues programs, models, and organizations that have been successful in reaching these audiences, and resources available for this purpose
- Identifies the target audiences' training needs, as well as the barriers that impede efforts to meet those needs
- Presents strategic objectives, related to the goals of the Strategic Plan, that are designed to address the issues raised

The original version of this paper was prepared for the *National Strategic Plan for Tuberculosis Training and Education* and was published in that document in January 1999. For the current version of the Strategic Plan, the paper has been substantially revised and updated.

II. TARGET AUDIENCES

Correctional and other detention facilities are overseen by local jurisdictions, state agencies, or federal agencies. Local jurisdictions are generally cities or counties. Federal agencies are generally the Federal Bureau of Prisons (BOP); U.S. Immigration and Customs Enforcement (ICE), within the U.S. Department of Homeland Security (DHS); or the U.S. Marshals Service. Healthcare services are the responsibility of the jurisdiction, but may be delivered directly by the managing agency or through a contractual relationship with an outside vendor. Whatever the arrangements made by the jurisdiction, the target audiences for TB training and education in correctional and other detention facilities include a broad array of individuals who play different roles and need different levels and types of information. The information provided to each audience should be individually tailored, based on its role and responsibility for TB control:

Government and community decision makers can influence funding and policy for TB training and education. Their role is to develop policies that positively impact the health of the larger community and meet community needs. In addition, some of these individuals make decisions about the detention, transportation, and release of individual inmates and detainees. Such decision makers should be familiar with TB in order to safeguard the health of persons under review, as well as the health of staff and other prisoners or detainees (who will be in contact with the person

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during detention or transportation) and the health of the community (who will be in contact with the former inmate or detainee after release). They include:

- Elected officials
- Judges and legal counsel (including immigration judges)
- Directors of governmental and non-governmental organizations
- Professional associations
- Lobbyists
- Consumer and family advocates
- Legal and health care services consultants

Managers and administrators of correctional and other detention systems are directly responsible for addressing training needs and for developing policy in support of training. Their roles are to ensure that adequate funding and quality training resources are available, and that line staff participate in training. They include:

- Facility superintendents, directors, and wardens
- Administrators of federal, state, and local prisons, jails, juvenile justice systems, and immigration enforcement detention systems
- Members of statewide boards of corrections
- County sheriffs and city chiefs of police
- Directors and administrators of alternative sentencing programs

Correctional healthcare providers are directly responsible for providing health care and healthcare training at correctional and other detention facilities. In addition, they must frequently direct their own courses of self-study to keep current with changing information. In terms of education, their role is to provide and consume timely, high-quality training. They include:

- Health administrators
- Medical directors
- Healthcare providers and allied health staff, whether private or public employees
- Community-based organizations that provide health and social support services
- Providers of contractual correctional health care

All employees and volunteers in correctional and other detention facilities are an at-risk population, and therefore “consumers” of TB education. Their roles are to cooperate with

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screening procedures and adhere to TB treatment and preventive therapy regimens. They can advocate for and support training and workplace safety. They include:

- Correctional and immigration detention officers
- Custody administrators
- Reintegration staff, including counselors, social workers, HIV case managers, correctional officers, and other staff members who are dedicated to reintegration
- Other non-custody facility personnel
- Volunteers who provide information, education, or support services
- Probation and parole officers
- Deportation officers

Inmates and detainees are high-risk “consumers” of TB education. Their role is to cooperate with screening procedures, adhere to TB treatment and preventive therapy regimens, and advocate for TB education and risk reduction. They include:

- Inmates and ICE detainees
- Detained youth
- Parolees
- Inmate advocates
- Ex-offenders

Public health department TB program staff advocate for TB training; provide technical expertise, consultation, and epidemiologic analysis in support of training; and identify training needs. They may also provide training staff. They include:

- TB control officers
- Program managers
- Medical and nursing consultants
- Case managers
- Communicable disease investigators
- Training and education staff
- Surveillance and information specialists
- State Departments of Children and Family Services
- Health units within juvenile detention centers

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- School health units within juvenile detention centers (frequently separate from central health units)

Section V, Needs and Barriers, includes additional information on the roles, responsibilities, and motivational factors of the target groups.

III. DEFINING THE ISSUE

Correctional and other detention facilities are high-risk settings for TB transmission and pose unique challenges for TB control. Many inmates and detainees have one or more risk factors for TB, and issues such as overcrowding and ventilation, which are a concern in some correctional and detention institutions, facilitate the spread of TB infection and disease. TB control in such settings is further complicated by the variables of inmate length of stay and degree of risk. The transmission of TB in these facilities presents a public health problem for employees who work there, for inmates or detainees, and for the communities into which the inmates or detainees are released and where the employees live and work.

TB has long been recognized as a major concern for correctional facilities. In the May 12, 1989, issue of *Morbidity and Mortality Weekly Report* (MMWR), the Advisory Council for the Elimination of Tuberculosis (ACET) published recommendations to assist correctional and detention officials in controlling TB among inmates or detainees and staff in their facilities. In response to the continued relatively high number of TB cases among incarcerated persons, in 1995 the Centers for Disease Control and Prevention (CDC) issued *Controlling TB in Correctional Facilities*, a guide to assist federal, state, and local officials in controlling TB among inmates or detainees and staff of correctional and detention facilities.¹

A year later, in the June 6, 1996, issue of the MMWR, the CDC published *Prevention and Control of Tuberculosis in Correctional Facilities*,² which included updated and expanded ACET recommendations for prevention and control of TB in these facilities. The publication contains guidelines and suggests policies for carrying out essential screening, containment, and assessment activities. Recognizing that different types of facilities have unique needs, the publication divided correctional facilities into categories based on the duration of inmates' stay:

- *Long-term correctional facilities*: State and federal prisons, juvenile facilities, and some jail facilities that house predominantly long-term inmates, most of whom have been tried and sentenced
- *Short-term correctional facilities*: Jails, detention centers, and temporary holding areas that house predominantly short-term inmates or detainees, most of whom are awaiting trial

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or serving brief sentences. Short-term correctional facilities were further categorized as those that confine populations at high risk for TB and those that confine populations at low risk for TB (i.e., those located in areas with low incidence of TB)

The document also defined long-term and short-term inmates. *Long-term inmates* are those who remain in custody 14 days or longer. *Short-term inmates* are those who remain in custody less than 14 days, especially pretrial detainees, who probably will be released without supervision or placed in the community under court supervision.

The authority and responsibility for TB control in facilities controlled by local jurisdictions are sometimes unclear. The appropriate roles of the health department and the agencies responsible for the facility may not be clear to the individuals charged with TB control. Furthermore, if medical services are privatized and the correctional health contract is silent on the issue of TB control, it can be ambiguous as to which party has the responsibility for preventive health services—the state or the private contractor.

Why TB Control Is a Challenge in Correctional and Detention Facilities

A more in-depth look at TB risks and rates shows why correctional and other detention facilities need to address TB control. A number of factors contribute to the problem and demonstrate the need for TB training and education for the target audiences:

Inmate populations with high TB risk factors. Correctional and other detention facilities typically house inmates or detainees who are likely to have one or more significant risk factors for TB, such as a pattern of substance abuse or alcohol abuse, a history of homelessness, HIV infection, or poverty. Some of these individuals may be foreign-born, coming from countries with a high prevalence of TB. Prisons may also house elderly inmates, for whom advanced age may be an additional risk factor.

The prevalence of HIV infection and AIDS among inmates is a factor that increases the TB risk considerably. According to the CDC, “The prevalence of HIV infection and acquired immunodeficiency syndrome (AIDS) among inmates has increased substantially during the past decade, and the annual incidence of AIDS among prisoners is markedly higher than the incidence among the total U.S. population.”³

Higher rates of TB than the general population. Studies provide estimates of TB rates in correctional and detention facilities. Of those diagnosed with TB in 1997, 40 percent passed through a correctional facility that year.⁴ Nationwide, the incidence of TB among inmates is

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estimated to be four times the rate for the general U.S. population.^{5,6} However, the incidence of TB among inmates differs by state, and in some states has been shown to be six to fifteen times higher than the rate for the general state population.^{7, 8, 9, 10, 11}

Placing inmates with high TB risk factors and rates in congregate living settings makes correctional facilities high-risk areas for TB transmission. One of the reasons cited for the resurgence of TB from 1986 to 1992 was the transmission of TB in congregate settings, such as correctional facilities.¹²

High risk of transmissions due to poor ventilation or overcrowding. When present, overcrowding and poor ventilation can facilitate the spread of TB, first inside the facility and then to the community at large as inmates or detainees are released or staff interacts with persons outside the facility. In a number of states and cities, TB outbreaks, including transmission of multidrug-resistant TB (MDR TB), have been traced to inmates and correctional staff.^{13, 14} TB transmission inside correctional and detention facilities presents a public health problem within the facilities, for the communities into which inmates or detainees are released, and to employees' homes and communities.

Growing inmate populations. An increasing number of people are incarcerated or are employed in correctional and other detention facilities. The most recent statistics from the Department of Justice show that 665,475 persons were held in county jails and 1,353,759 in state and federal prisons—a total of 2,019,234 inmates.¹⁵ Of all jail and prison inmates, 38 percent are white, 45 percent are black, and 15 percent are Hispanic. Women make up over 8 percent of the jail and prison population.¹⁶

Prison populations have doubled in the last decade and are predicted to grow 8 percent per annum for the next several years. At this rate, 5 percent of all Americans will serve time in prison during their lifetime.

Special Considerations for Juvenile Facilities

The differences between adult and juvenile facilities should be recognized when planning for TB training and education, even though the needs and responsibilities of adult and juvenile centers are similar.

The age range of the juvenile population can vary by state; it generally includes individuals between the ages of 12 and 17, but some centers may include younger children or 18-year-olds. In terms of detainee turnover, juvenile centers can be much more like jails than prisons; youth

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detainees stay briefly, around 25 days on average. Staff turnover, however, seems less common than in adult facilities. Many juvenile centers contain a school unit with its own discrete staff.

LTBI is the principal issue for juvenile facilities, since active TB disease is relatively rare in this population. Children who have a positive tuberculin skin test (TST), especially those younger than five years of age, are likely to be in the early stage of LTBI and are at high risk for progression to active disease, with the potential for disseminated TB. The risk for developing active TB is also increased in adolescents and young adults. In some jurisdictions, regulations require reporting of LTBI, as well as active disease, in minors (until recently, Illinois required reporting for anyone under 15).

Special Immigration and Customs Enforcement Issues

The U.S. Immigration and Customs Enforcement, Detention and Removal Operations is a unique and important system that involves many facilities and manages a population with high rates of active TB disease. It is also unique in the dramatically high number of languages spoken among its detainees. Approximately 150 languages are encountered among detainees, and low literacy is a common condition for detainees speaking all of these languages.

Detention and Removal Operations is managed by the U.S. Immigration and Customs Enforcement (ICE), under the U.S. Department of Homeland Security (DHS), with some of the detention managed by contractors and local governments under agreement with DHS. In fiscal year 2002, the active TB prevalence rate was estimated to be 83 per 100,000 initial screenings in 11 facilities managed by ICE or its contractors. Most detainees get deported or accepted into the destination country before treatment is completed. This population fluctuates more frequently than any population within detention settings.¹⁷

In May 2003, ACET published several recommendations related to the post-detention completion of TB treatment for persons deported or released from the custody of the U.S. Immigration and Customs Enforcement.¹⁸

IV. SUCCESSES AND RESOURCES

Successful TB training programs for corrections staff usually include active collaboration between public health departments and correctional and other detention facilities. The recent National Institute of Justice/CDC research brief, *Public Health/Corrections Collaborations: Prevention and Treatment of HIV/AIDS, STDs, and TB* (July 1998), reported that virtually all the corrections systems that they surveyed had some collaboration with public health agencies,

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including the provision of staff training. Rhode Island and New York had the most comprehensive programs. Among the key factors for successful collaboration are the availability of current data; organizational, legislative, or regulatory requirements; institutional attitudes that reflect commitment to collaboration; funding from health departments for programs in corrections; and ongoing communication channels, such as regularly scheduled meetings and planning groups.

The following are selected examples of successful training programs in correctional and other detention settings:

- The National Commission on Corrections Health Care (NCCHC) has regularly dedicated time to TB during its annual meetings and has made TB the central theme on several occasions
- Florida State Department of Corrections conducts annual statewide case reviews of active disease located in prison populations. In addition, the department provides a dedicated staff person and regular TB contact investigation training courses for jails. The training is offered in conjunction with the Florida Jail Association
- The California TB Controllers Association (CTCA) devoted its spring 1998 conference to TB and corrections issues. Extensive outreach ensured the participation of corrections staff (37 percent of the 438 participants represented correctional facilities; 43 percent were from local health jurisdictions)

Resources

The organizations, programs, projects, and materials described below are further examples of successful approaches and resources for providing TB training and education to the target audiences:

■ ***Tuberculosis Education and Training Resource Website***
Centers for Disease Control and Prevention (CDC)

Maintained by CDC, the *Tuberculosis Education and Training Resource Website* is an online searchable database of TB education and training materials and resources currently available for providers, patients, and the general public. It is an excellent place to begin when searching for TB training and education resources. The website evolved from the CDC's print document, the *Tuberculosis Education and Training Resource Guide*, and incorporates the resource inventory compiled for the first Strategic Plan. Listings include resources that apply to particular audiences, including persons involved with correctional and other detention facilities. The website address is: <http://www.findtbresources.org>

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All agencies involved in TB control are encouraged to make regular use of this website, both to list new products they have produced and to ascertain what materials are already available. This participation will make the website an even more effective means of conserving funds, coordinating efforts, and sharing resources. For more information, refer to Attachment C.

■ ***TB in Correctional Facilities***

Texas Department of Health

The Texas Department of Health has developed a videotape on TB in corrections facilities. *TB in Correctional Facilities* provides information for inmates and is available in English and Spanish. A third version of the tape targets security and custody staff.

■ ***Prevention and Control of TB in Correctional Facilities***

New Jersey Medical School National TB Center

The New Jersey Medical School National TB Center has developed an audio conference training course entitled *Prevention and Control of TB in Correctional Facilities* for staff involved in TB activities in correctional and other detention settings.

■ ***Corrections TB Training and Education Resource Guide***

*Francis J. Curry National TB Center
and National Commission on Correctional Health Care*

The Francis J. Curry National TB Center collaborated with NCCHC in 2003 to produce a *Corrections TB Training and Education Resource Guide* that lists training materials appropriate and specific to correctional facilities and systems.

■ ***Tuberculosis Infection Control Plan Template for Jails***

*Francis J. Curry National TB Center
and California Department of Health Services, Tuberculosis Control Branch*

These two agencies collaborated to produce this 2002 publication, which was created to assist jails across the U.S. in developing and implementing comprehensive TB infection control plans appropriate for their differing needs and resources. The template offers a model plan for customized policies and procedures.

■ ***CureTB***

San Diego County, CA, Health and Human Services Agency

This program aims to improve continuity of care for persons with TB and their contacts who travel between the U.S. and Mexico. In addition to providing direct guidance to patients, CureTB

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accepts patient referrals from providers in both countries and acts as an information link between them. Services are available to all patients and providers throughout the two countries. For information, see the CureTB website: <http://www.curetb.org>

■ TB Net*Migrant Clinicians Network*

A program of the Migrant Clinicians Network, TB Net is a bi-national TB patient tracking and referral project. TB Net helps migrant TB patients complete treatment in three ways. The program supplies TB clinics with wallet-sized portable treatment records that patients can easily carry wherever they go. TB Net maintains a central repository of the enrolled patients' medical records and a toll-free line that can be used to request up-to-date information. Patients can also call TB Net on the toll-free line for help in locating treatment facilities at their next destination. These three systems work together to coordinate the continuous treatment of migrant TB patients. The program operates free of charge to both clinic and patient. For information, see the TB Net website: <http://www.migrantclinician.org/programs/TBNet/tb.html>

■ ACET Recommendations*Advisory Council for the Elimination of Tuberculosis*

In the May 12, 1989, issue of MMWR, the Advisory Council for the Elimination of Tuberculosis (ACET) published recommendations to assist federal, state, and local correctional officials in controlling TB among inmates and staff of correctional facilities. Revised recommendations were published in the June 6, 1996, issue of the MMWR. The new recommendations were updated and expanded to respond to the unique needs of both short-term and long-term correctional facilities. They contain guidelines and suggested policies for carrying out essential screening, containment, and assessment activities.

■ Controlling TB in Correctional Facilities*Centers for Disease Control and Prevention*

Based on the 1996 ACET recommendations and the *Core Curriculum on Tuberculosis*, this comprehensive, user-friendly guide is a resource to assist federal, state, and local correctional officials in controlling TB among inmates and staff of correctional and other detention facilities. It is intended to provide guidance and training to health department staff and correctional medical and administrative officials who are responsible for implementing TB control policies. The appendices provide tools—case studies, screening algorithms, treatment tables, and sample forms for information management—that can be adapted to specific circumstances and needs. This resource is intended to encourage collaboration and cooperation between health departments and correctional and other detention facilities located in their jurisdictions.

■ *Standards for Correctional Health Services**National Commission on Correctional Health Care (NCCHC)*

NCCHC has produced a series of *Standards for Correctional Health Services*, which include TB-related standards consistent with ACET recommendations. These standards serve as the basis for accreditation by the NCCHC. Established in 1983, accreditation is a process of external peer review in which NCCHC grants public recognition to detention and correctional institutions that meet nationally established and accepted standards for the provision of health services. Although not all correctional facilities are currently accredited, a growing number of correctional systems are requiring accreditation for corporations (e.g., managed care organizations) that provide health care under contractual arrangements.

■ American Correctional Association (ACA) Standards

ACA includes standards for provision of health care services as part of the overall facility accreditation. ACA standards include requirements for health education programs on TB and a mandate for management of serious and infectious diseases, including TB.

■ Resources from the Federal Bureau of Prisons (BOP)

BOP has developed and published the *Infectious Disease Management Technical Reference Manual*, which includes chapters on TB that are based on current ACET recommendations. The manual includes a Protocol Study Guide covering each infectious disease. Currently, the infectious disease specialist in each of the 92 BOP facilities conducts intake and annual education for inmates and correctional officers about the basics of preventing and controlling infectious diseases. The BOP website makes available, as downloadable documents, sets of Clinical Practice Guidelines on various medical conditions and diseases, including LTBI and TB disease.

■ U.S. Immigration and Customs Enforcement (ICE) Detention Standards

Because of its high volume of intake and short duration of detention, ICE detention standards emphasize prompt intake screening, including TB screening; isolation of TB suspects; and prevention of contact between arriving, unscreened detainees and the general detention population. The ICE detention standards stress the need to be effective and extremely efficient with intake processes and with TB screening and control.

V. NEEDS AND BARRIERS

TB Training and Education Needs for Correctional and Detention Facilities

As part of the effort to create the new *Strategic Plan*, a survey of key staff from TB programs was completed. The survey results, which are presented in Attachment B, indicate that less than a quarter of respondents believe that more than half of corrections personnel are receiving an appropriate amount of TB training and education, despite regular inclusion of corrections staff in the profiled training activities. In other words, according to the respondents, a majority of corrections staff do not receive adequate TB training and education. This response should change as penetration of TB training and education improves and our key informants acknowledge this penetration.

The target groups need two main types of information: specific information about TB infection disease and broad-based policy information. Specific TB information consists of:

- Basic explanations of TB and how it is transmitted—supplied in multiple languages and in low-literacy formats
- Treatment of active TB disease and LTBI (with reference to corrections-specific issues, such as the heightened prevalence of hepatitis)
- Severity of the disease
- Identification of and preventive therapy for LTBI
- Identification and treatment for TB disease

Broad-based policy information consists of:

- The risk of TB transmission in correctional and other detention facilities, and the importance of TB control
- Ways in which correctional TB can negatively impact the larger community and the role of correctional facilities in public health
- The high cost to the community of not doing enough to control TB
- Steps that correctional and other detention facilities can take to decrease TB in their systems
- The possibility of community backlash toward policy makers and facility administrators if correctional TB becomes a source of infection to the community

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- Liability of correctional and detention facilities if TB transmission to employees becomes a problem
- Recommended policies, standards, and guidelines to prevent and control correctional TB
- Recommended policies to assist ICE in securing continued treatment for internationally deported detainees with active disease

Government and community decision makers need to understand the risk and seriousness of TB transmission in correctional and other detention facilities in order to justify their support for funding TB control activities and training. They need to understand how correctional TB affects the health of outside communities. Their input facilitates program development, so their understanding of correctional TB is crucial. They are the ones who can convince correctional administrators to make TB transmission prevention a priority.

However, many decision makers do not want to take the time for training. They might believe that prevention measures are unfeasible because of cost and management issues. They might also believe that disease among inmates and detainees is not a popular issue for their constituents and therefore does not merit their attention. Members of this group might be motivated by the desire to avoid additional costs, liability, or bad press due to disease outbreak. They need to understand the basics of TB control and prevention, as well as the broad-based policy information. Advocates of TB education and training should target this group to promote education as a viable and appropriate intervention that can improve TB-related outcomes.

Managers and administrators of correctional and detention systems must maintain the mission of correctional facilities, which is to incarcerate and control inmates or detainees, and thus protect the public's safety. Inmate health care is a secondary priority. Their educational need is to understand the risk of TB transmission to staff, inmates or detainees, and the community, and the resulting liability issues. They can provide leadership to employees who must learn and follow TB prevention guidelines, as well as staff time and resources to healthcare providers charged with maintaining systems of TB control. They can authorize outside groups to provide TB training and education for their facility.

Like key decision makers, managers and administrators might be motivated by a desire to avoid liability and negative press. If this group takes TB control seriously, so will everyone else. This group needs to understand the basics of TB control and prevention, the broad-based TB information that underpins effective policies, and the public health perspective. Advocates of TB education and training should target this group to promote educational interventions.

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Correctional healthcare providers (CHCPs) include a variety of professionals with various levels of training. They are the backbone of the facility's TB program. To properly identify, control, and prevent TB, they must know the difference between TB infection and TB disease, and understand TB transmission and pathogenesis. They also need TB-related skills—how to screen for symptoms, how to diagnose TB, how to place and read TST, etc.—as well as access to the most current medical information.

These professionals are charged with every health-related effort within their facilities, which means that other demands can interfere with the attention that should be paid to TB. Because TB is a high-priority issue, screening efforts in correctional and other detention facilities are common and routine. However, in many geographic areas, occurrences of active TB disease and concurrent outbreaks within a population can be rare. A situation of low incidence can easily lead CHCPs, their managers, and facility administrators to prioritize other topics for training and education. In the short run, such a strategy can benefit the facility by improving non-TB-related skills. However, in the long run, it leaves the facility staffed with individuals who have not developed appropriate skills, or who have not been able to update and refine the TB training they may have received in other environments. Ensuring that time and resources are made available for CHCPs to develop or maintain their TB expertise should be every facility's first TB priority.

Employees and volunteers in correctional and other detention facilities have the most direct contact with inmates or detainees. They need to understand their own risks and how to minimize them. These employees spend a lot of time with inmates or detainees and can be a source of positive influence within the facilities. Because of the seriousness of TB, they may need to assist in assessing disease (e.g., support contact investigations) and to ensure access for inmates needing medical care. If employee health and safety are in question, this group has influence through unions and professional organizations to affect policies and procedures in the workplace. If correctional staff does not take TB seriously, inmates won't, either.

Inmates and detainees need to understand what TB is and why treatment and preventive therapy are important, as well as how to identify symptoms of disease, minimize risk, and possibly assist in reporting suspect TB cases. Inmates spend all of their time with fellow inmates and can reinforce TB education efforts. They can help identify disease and can be a voice to bring this issue to the table. Education for inmates must be culturally appropriate. Materials must be prepared for appropriate reading levels, keeping in mind the varied literacy levels present in many of these populations.

Public health department TB program staff are responsible for TB-related assessment, policy development, and assurance functions throughout their jurisdiction, including correctional facilities. ACET recommendations specifically charge TB programs to:

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- Designate a specific person to work with correctional and detention facilities
- Assist correctional facilities in the development, implementation, and updating of TB control policies and procedures; training and educational programs; tracking and patient record systems; HIV prevention programs
- Ensure that released inmates and detainees complete therapy
- Assist with contact investigations in correctional and detention facilities
- Provide or refer to expert clinical consultation
- Ensure access to adequate laboratory services

Furthermore, past successful TB training efforts have invariably been based on strong linkages and collaboration between health department and corrections staff. Public health department staff need to understand the specific risks associated with TB in correctional and detention settings and, perhaps more important, the mission and responsibilities of these facilities, as well as the organizational challenges of providing TB control programs in such settings.

Barriers to TB Training and Education

There are a number of barriers to effective TB training in correctional and other detention facilities, which come from a variety of sources:

- Personnel challenges, such as:
 - Staffing limitations that make it difficult for staff to attend training
 - Lack of staff to plan and implement training and education among the target groups
 - Staff turnover that results in the need for ongoing training
- Limitations on resources available to support training activities, such as:
 - Lack of knowledge of, or access to, TB training and education materials and resources
 - Limited access to Internet education and information resources because of computer security barriers (many facilities restrict Web access)
 - Limited access to information resources accessible by telephone because of security barriers (many facilities restrict 800-number calls)
 - Preference for familiar sources known to be conversant with correctional and detention issues. For example, TB resource guides and guidelines branded by known corrections organizations might receive more attention from providers in all correctional settings.

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- Even if these guides recommend the use of general educational materials, the guide might need to present itself as “specific to corrections and detention environments.”
- Geographical isolation of prison facilities, which are often in rural areas; this limits access to high level training resources, which are usually located in urban areas
 - Communications challenges between, and the divergent missions of, the health department and correctional or detention facilities, such as:
 - Lack of understanding or appreciation among health department staff about the facilities’ issues, barriers, and culture, which can impede implementation of TB prevention and control interventions
 - Lack of understanding and appreciation among corrections and detention staff about public health issues and responsibilities related to TB prevention and control
 - Lack of recognition by correctional and detention institutions of their opportunity to improve the general public health and minimize future health problems by actively treating inmates or detainees who may well return to such a facility
 - Competing demands for everyone’s attention: TB control and prevention are not the major priority for any of the target populations
 - Mistrust between correctional or detention facilities and state and local TB control programs
 - Conflict between federal immigration law and state TB control policies: Immigration law does not address the public health impact of deporting active TB patients prior to completion of treatment

VI. STRATEGIC OBJECTIVES

The strategic objectives below are suggested as specific steps that can be taken toward the accomplishment of the five broad goals that have been defined for the *National Strategic Plan for TB Training and Education*. Considering the overarching aims of the *Strategic Plan* and the current state of TB training and education efforts for persons involved with correctional and other detention facilities, this workgroup has selected the following objectives as reasonable and feasible priorities for the next five years. They provide a means of beginning to address the issues identified in Section V, Needs and Barriers.

By intention, the strategic objectives do not specify who will do what. Instead, they describe a desired outcome and identify the types of organizations that would need to be engaged if the strategic objective is to be achieved. The workgroup charges the Implementation Committee of

the Strategic Plan to secure commitment and action from the necessary agencies during the coming five years.

Strategic Objective 1

Desired Outcome: Availability of an enhanced supply of regularly updated, culturally appropriate, low-literacy supporting materials for use with detainees and inmates

Strategy:

National TB training and education agencies should produce and maintain regularly updated, culturally appropriate, low-literacy supporting materials for use with detainees and inmates in at least three languages. Beyond the five year scope of this plan, the number of supported languages should continuously increase, expanding and changing to fit current needs.

Strategic Objective 2

Desired Outcome: Development of recommendations for ongoing education of appropriate parties regarding the importance of LTBI treatment for prisoners and detainees

Strategies:

National TB agencies should work with national corrections agencies to develop and promote recommendations relevant to the importance of LTBI treatment for long-term prisoners and detainees and for high-risk, short-term detainees.

Local TB programs should collaborate with correctional and other detention facilities to educate local facilities (clinicians, officials, administration, inmates) about the importance of LTBI treatment.

Strategic Objective 3

Desired Outcome: Development, adoption, and promotion of TB core competency recommendations for professionals involved in healthcare in correctional and other detention facilities, and ongoing delivery of TB training and education to these audiences

Strategies:

National TB agencies should work with national organizations that represent or influence professionals involved in healthcare in correctional and other detention facilities to develop, adopt, and promote recommendations for core competencies for the following professional titles: medical directors; clinical providers; sheriffs; jail officials; immigration judges and officials.

National TB training and education agencies should develop training activities and materials keyed to the consensus core competency recommendations.

National corrections agencies should regularly include educational opportunities at conferences and meetings.

Correctional facilities, detention facilities, and related organizations should adopt the recommendations and make opportunities for staff to receive appropriate training and education.

VII. CLOSING STATEMENT

Recent declines in TB cases are the result of rebuilding our nation's TB control programs, including the development of successful corrections/public health collaborations, resulting in better identification and treatment of people with infectious TB, our highest TB control priority. Yet if we do not deal with the pool of infected individuals at high risk of developing active disease, TB will not be eliminated as a public health threat. Correctional and other detention settings provide a unique opportunity to efficiently carry out screening and treatment for active disease, as well as directly observed preventive therapy, in persons at high risk for TB. Appropriate TB training and education for the target audiences identified in this position paper are essential if we are to take advantage of this opportunity.

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TUBERCULOSIS TRAINING AND EDUCATION FOR

Providers Serving High-Risk Populations

I. INTRODUCTION

This paper examines the issues related to tuberculosis (TB) training and education for providers who work with three kinds of high-risk populations—people experiencing homelessness, substance abusers, and HIV-infected persons. These populations provide major challenges for TB treatment and control. Not only are they at greater risk of TB infection and disease than the general population, but their social situations and co-morbidities can also greatly complicate the tasks of preventing and treating TB. It is crucial that healthcare providers and social service professionals who work with these groups be aware of their groups' TB risk and knowledgeable about the care and control of the disease.

The goals of the workgroup were to examine the current scope of training and education efforts for providers serving high-risk populations, and to develop strategies that could lead to a more comprehensive and coordinated approach to these efforts. In this paper, the workgroup:

- Profiles the target audiences, identifying the job categories in the provider population that would be appropriate recipients of TB training and education
- Defines issues and problems relevant to TB training and education for the target audiences
- Catalogues programs, models, and organizations that have been successful in reaching these audiences, and resources available for this purpose
- Identifies the target audiences' training needs, as well as the barriers that impede efforts to meet those needs
- Presents strategic objectives, related to the goals of the Strategic Plan, that are designed to address the issues raised

The original version of this paper was prepared for the *National Strategic Plan for Tuberculosis Training and Education* and was published in that document in January 1999. For the current version of the Strategic Plan, the paper has been substantially revised and updated.

II. TARGET AUDIENCES

For the purposes of this paper, the term “high-risk populations” refers to people experiencing homelessness, substance abusers, and HIV-infected persons. Foreign-born persons, inmates in correctional facilities, and other groups that may be considered high-risk populations are being addressed by other workgroups.

Although the term “homeless” has numerous definitions, it is defined here as those who live on the streets or in shelters. The term “substance abusers” refers to those with a pattern of alcohol and/or drug use leading to clinically significant impairment or distress. The term “HIV-infected persons” encompasses those who carry the human immunodeficiency virus, and is not limited to persons diagnosed with AIDS.

The target group addressed by this paper is the providers who work with high-risk populations rather than the high-risk populations themselves. Some examples of this diverse group of providers are:

- Physicians, physician assistants, nurses, and healthcare workers
- HIV prevention workers, HIV test counselors, treatment advocates, case managers, and other social service providers
- Substance abuse (SA) counselors and program directors
- HIV trainers, SA trainers, and TB trainers
- Administrators
- Community and street outreach workers
- Service organizations and advocacy groups

Similarly, the workplaces of these providers are extremely varied:

- Hospitals, clinics, and long-term care facilities (especially infectious disease and pulmonary departments) serving these populations
- Homeless shelters, single-room-occupancy hotels, bunkhouses, and halfway houses

- HIV residential facilities, HIV service organizations, HIV counseling and testing facilities, and sexually transmitted disease (STD) clinics of local health departments
- Facilities providing services for substance abusers
- Facilities in urban areas with large populations of high-risk individuals
- Community-based organizations serving high-risk individuals
- Schools serving these populations

III. DEFINING THE ISSUE¹

Since members of high-risk populations have distinct needs, professionals working with these populations should be specifically targeted for training. High-risk populations are at increased risk of TB infection and are often at increased risk of developing TB disease once infected. Risk factors for homeless persons, substance abusers, and HIV-infected persons may overlap. For instance, a person who injects illicit drugs and shares needles is at higher risk of HIV infection. If the person is a recurrent resident of a homeless shelter, is incarcerated, or frequents injection drug venues (e.g., “shooting galleries”), he or she is at risk for TB exposure or infection. If the person has active disease, he or she may expose and transmit tuberculosis to others.

Some individuals of high-risk populations might have difficulty accessing or be unwilling to access medical services for numerous reasons. They may be perceived by healthcare and social service providers as undesirable, difficult patients who are not interested in their health care or are not educable. There is often less interest in educating and counseling these individuals. Cultural, educational, and language barriers exist that can lead to nonadherence and incomplete treatment. Such situations can lead to treatment failure and the possibility of multidrug-resistant TB (MDR TB). These are negative consequences not only for the infected person, but also for society as a whole.

Homelessness²

The causes of homelessness are complex and multifaceted. They include both external causes, such as unemployment and decrease in the value of public benefits, and personal vulnerabilities, such as physical health problems, mental health disorders, addictions, trauma and abuse, and lack of social support. The shelter system is a necessary but imperfect solution to homelessness.

Approximately 500,000 persons in this country are homeless at any given moment. About 30 percent are severely mentally ill. Indices of alcoholism and other forms of substance abuse are

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higher than those of the general population. HIV-positivity rates are not known, but in New York City, estimates indicate that 11 percent of single adult homeless persons are HIV-infected.

Many of the conditions associated with homelessness increase the risk of TB infection among homeless persons. According to the U.S. Centers for Disease Control and Prevention (CDC), TB rates among the homeless population are estimated to be 150 to 300 times the national rate. Screenings of clients at selected clinics and shelters indicate that the prevalence of clinically active disease ranges from 1.6 to 6.8 percent. Contact with other people with active TB, poor nutrition, substance and alcohol abuse, higher rates of HIV infection, limited access to health care, and poor adherence to TB treatment contribute significantly to the higher-than-average rates of TB among homeless individuals.

In addition to the TB risk factors among homeless individuals, shelter environments also play a role in the spread of TB, resulting in latent infection and disease. Clients typically stay in close quarters for eight to twelve hours per night, and shelters frequently have inadequate ventilation systems. These environmental factors contribute significantly to the transmission of TB infection among persons who stay or work in these facilities.

Social service providers and shelter staff are on the front line of detection of TB infection and disease among people experiencing homelessness, since these staffers have the initial encounter with clients when medical attention, social services, or shelters are accessed. In order to combat TB in the homeless population, social service providers, especially those who work in shelters, need to be well informed about TB. The goals of training are to:

- Increase understanding of TB
- Reduce anxiety about the disease
- Enhance the ability to identify the signs and symptoms of TB
- Provide information about procedures to follow when TB is suspected, as well as referral sources
- Prevent the spread of infection to other clients and staff

It is the managers and administrators of social service organizations, including shelters, who generally determine whether or not their employees receive accurate, consistent, and up-to-date training. Consequently, it is critically important to direct educational efforts at these decision makers to inform them about TB and the importance of TB training for their staff.

Substance Abuse³

Substance abuse is often associated with low socioeconomic status, homelessness, and mental illness, which are factors that increase the risk of TB infection in this population. Injection drug users and HIV-infected persons have an increased risk of developing TB disease after being infected with TB.

The use of alcohol and other drugs can minimize the abuser's desire or ability to access primary healthcare, delaying early intervention and treatment. The instability of many substance abusers' lives also contributes to missed diagnosis of TB cases and poor adherence to treatment. Alcohol and drug abuse is related to low body weight, which can increase the risk that TB infection will progress to disease.

Many people with substance abuse issues live in residential facilities (e.g., rehabilitation centers), homeless shelters, or correctional facilities or other court-mandated settings. Typically, these sorts of facilities are overcrowded and have poor ventilation, with limited or no respiratory protection for residents and staff. While federal and state correctional facilities have legal mandates regarding ventilation and respiratory protection, small local jails may not. In addition, many substance abusers use drugs under conditions that facilitate the transmission of TB. For instance, some injection drug users inject drugs in dark, poorly ventilated buildings, referred to as "shooting galleries." Crack cocaine users limit ventilation in their smoking sites to avoid detection and often smoke in groups in these enclosed environments, or "crack houses." These behavior-associated risks have contributed to TB transmission within such facilities and to the community beyond.

In 1992, Congress enacted a TB services mandate for all substance abuse programs that receive funding through the Substance Abuse Prevention and Treatment (SAPT) Block Grant. This mandate requires such programs to make TB screening, evaluation, and follow-up routinely available for clients. Department of Health and Human Services regulations require states to monitor, enforce, and facilitate program compliance with the mandate. Complementing the mandate are state laws that require many alcohol and other drug (AOD) treatment providers to report cases of communicable disease, including TB, to local or state public health officials, and to cooperate with them in client follow-up.

The purpose of both the mandate and state communicable disease reporting laws is to protect clients, program staff, and the public from TB. Cooperation between the public health department and AOD facilities has the following benefits:

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- Earlier and more effective identification of active TB cases and those with latent TB infection (LTBI)
- Improved TB reporting
- Adherence to treatment in a population that is difficult to reach
- Facilitation of directly observed therapy (DOT)
- More effective monitoring of treatment adherence
- Better monitoring for and addressing of toxicities associated with TB therapy, especially significant in those with underlying liver disease
- Facilitation of follow-up
- Higher rates of treatment completion and cure

Informed SA providers improve the efficacy of public health work when an investigation occurs. When SA providers know the rules on confidentiality, etc., public health workers can establish “on the spot” partnerships for faster, more effective contact investigation. Because SA providers have extended relationships with clients, the potential for LTBI diagnosis and treatment is very good—especially among residential programs and methadone programs.

SA-related programs have contact beyond SA clients to these clients’ sex partners and other SA individuals not in treatment, who are also at risk for TB. With TB information and screening skills, SA-related programs are in an excellent position to improve case-finding of both persons with active disease and individuals with LTBI who are especially at risk of progression to active disease. Addiction Technology Transfer Centers (ATTCs) serve the education needs of SA-related programs and are ideally situated to ensure that providers serving this population have the necessary knowledge and skills.

HIV/TB Co-infection⁴

The relationship between TB and HIV infection was first acknowledged in the mid-1980s. Outbreaks of TB among HIV-positive individuals living in congregate settings (e.g., correctional facilities, residential hotels, halfway houses, and assisted living facilities) have been documented in the past 15 years and are ongoing. HIV-positive individuals experience a higher rate of developing active TB disease once they are infected with *M. tuberculosis* than the general population. In fact, active TB disease is now listed as an AIDS-defining event for people with HIV infection. Because of this, healthcare providers who manage and treat HIV-positive persons in congregate settings need enhanced knowledge of TB transmission, pathogenesis, and infection

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control. Targeted professionals should include clinicians, case managers, health educators, outreach workers, and HIV prevention counselors.

Factors contributing to the complexity of HIV/TB co-infection include missed or delayed diagnosis, atypical presentation of pulmonary TB in HIV-positive patients, and increased incidence of extrapulmonary TB in HIV-positive patients. Adverse drug reactions are common during the treatment of TB/HIV co-infection, especially when Rifampin is the drug of choice for treating TB. When TB is diagnosed in HIV patients already undergoing Highly Active Anti-Retroviral Therapy (HAART), it may be necessary to modify either the standard TB treatment or the HAART regimen to ensure adequate treatment of both TB and HIV infection while avoiding adverse drug interactions. If modifications of drug and dosing strategies are not correctly applied to both TB and antiretroviral regimens, the result may be less effective therapy for both TB and HIV, the development of resistance to both TB and antiretroviral drugs, and treatment failure. Patients may become less adherent to TB treatment because of discouragement at the sheer quantity of medications needed for HIV and TB treatment, or fear and depression about their HIV/AIDS status.

Hepatitis C co-infection is a common co-morbidity among past and current injection drug users. The presence of underlying liver disease compounds the already increased risk of toxicity of anti-TB and antiretroviral therapies. Providers must be alert to drug toxicity and able to modify regimens in a way that ensures effective therapy while limiting toxicity. Immune reconstitution reactions complicate TB therapy in more than a third of TB-HIV co-infected individuals. This is a diagnosis of exclusion, and both TB treatment failure and opportunistic infections need to be considered. Timing HAART can minimize these reactions. Awareness of the degree of immune compromise of an HIV/TB co-infected individual is important to ensure that an appropriate TB regimen and dosing interval are given. TB treatment regimens must have modifications of dosing intervals for those with CD4 counts less than 100, and rifapentine must be avoided in HIV-infected individuals because its use can result in treatment failure and acquired drug resistance.

There is a strong correlation between the states and territories with the highest incidence of TB and those with the greatest prevalence of AIDS. The majority of TB cases occur in U.S. cities where persons at risk for both diseases reside. In 2002, 35,147 new cases of HIV were reported in the U.S. and its territories and protectorates.⁵ (It should be noted that this number is incomplete; reporting requirements for HIV vary by state, so HIV data for several states are not available.) With similar numbers of cases reported each year, the pool of individuals at risk for TB infection continues to grow. For example, in 2001, 10.4 percent of TB cases nationwide were co-infected with HIV; in New York state the co-infection rate was 16.5 percent; in the District of Columbia, 47.1 percent; and in Puerto Rico, 65.5 percent. TB case finding, management, and treatment may

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be difficult to accomplish because of poor knowledge of local HIV infection rates, lack of cross-reference between AIDS and TB registries, necessary adherence to HIV/AIDS confidentiality laws, and missed diagnosis.

Clinicians who treat HIV patients must be knowledgeable about TB and the drug-drug interactions and treatment complications that can occur in co-infected individuals. The most efficient way to contain TB among HIV-infected patients is to cross-train HIV and TB providers on the following topics:

- Recognition of symptoms and risk behaviors associated with each disease
- Enhanced skill sets for the management and treatment of both diseases, which will result in positive treatment outcomes
- Education of patients about risk, transmission, and the importance of adhering to treatment
- Referral of patients for counseling, testing, and treatment when co-infection is suspected

IV. SUCCESSES AND RESOURCES

The organizations, programs, projects, and materials described below are examples of successful approaches and resources for providing TB training and education to the target audiences:

Resources Relevant to Providers Serving All High-Risk Populations

■ ***Tuberculosis Education and Training Resource Website***
Centers for Disease Control and Prevention (CDC)

Maintained by CDC, the *Tuberculosis Education and Training Resource Website* is an online searchable database of TB education and training materials and resources currently available for providers, patients, and the general public. It is an excellent place to begin when searching for TB training and education resources. The website evolved from the CDC's print document, the *Tuberculosis Education and Training Resource Guide*, and incorporates the resource inventory compiled for the first Strategic Plan. Listings include resources that apply to high-risk populations, such as homeless persons, and special settings, such as shelters and substance abuse treatment facilities. The website address is: <http://www.findtbresources.org>

All agencies involved in TB control are encouraged to make regular use of this website, both to list new products they have produced and to ascertain what materials are already available. This

participation will make the website an even more effective means of conserving funds, coordinating efforts, and sharing resources. For more information, refer to Attachment C.

Resources for Providers to Persons Experiencing Homelessness

■ **Philadelphia Health Management Corporation**

Philadelphia, PA

The Philadelphia Health Management Corporation program credits its success to the establishment of a symptom-screening program conducted via a central entry point for people seeking shelter. A knowledgeable medical person is always available to triage symptomatic clients and provide ongoing training as staff come and go. The success of this program is largely due to the fact that it meets the specific needs of the local area, an attribute that all communities trying to prevent TB should embrace.

■ ***TB in Homeless Shelters: Reducing Risk through Ventilation, Filters and UV***

Francis J. Curry National TB Center

This printed guideline is designed to help directors, operators, and managers of homeless shelters reduce the risk of TB transmission in these shelters.

■ **TB Training and Education Project for Providers of the Homeless**

Homeless Health Care Los Angeles

Los Angeles County provides TB training for healthcare and social service providers working with homeless and indigent populations. This project also provides technical assistance to organizations for developing and implementing a customized agency TB policy. The goals are to increase knowledge about TB; challenge and change attitudes about working with people who have or are at risk for TB; improve staff skills for providing TB patient education; improve referral mechanisms; and institute policy changes within agency operations to promote effective TB control measures. This program is successful because it provides practical recommendations for instituting or modifying site policies, resource networking, and on-site training, so that all staff can be trained.

■ **National Health Care for the Homeless Council (NHCHC)**

Nashville, TN

The NHCHC participated in the development of the *National Strategic Plan for TB Training and Education*, to ensure that the needs of shelter staff and other providers serving the homeless are addressed during the coming five years. Though the NHCHC does not offer training specific to TB, it has produced materials and supports various forms of education that reference TB-related materials.

Resources for Providers to Substance Abusers

■ **Overview of TB and the TB/HIV Connection**

New York State Department of Health, AIDS Institute

The AIDS Institute's half-day training, *Overview of TB and the TB/HIV Connection*, is offered to all health and human service providers in New York. The AIDS Institute has been certified as a New York State Office of Alcoholism and Substance Abuse Services (OASAS) Education and Training Provider.

■ **TB and Substance Abuse Cross-Training**

South Carolina TB Control Program

At least once a year, there is a two-day cross-training between TB control program staff and county Alcohol and Drug Abuse (A/DA) Commission staff. TB 101 is provided to A/DA staff on one day, while the other day is devoted to SA training for TB staff. A social worker who is the link between the two agencies is a key component for this project's success. The interagency referral system is strengthened as a result of this collaboration. The resources required to implement this model include: a healthy rapport between agencies, effective trainers, and available staff time for the trainers and training recipients.

■ **Addiction Technology Transfer Centers (ATTC)**

*Substance Abuse and Mental Health Services Administration (SAMHSA)
and Center for Substance Abuse Treatment (CSAT)*

The Addiction Technology Transfer Center (ATTC) Network is dedicated to advancing opportunities for improving addiction treatment. It undertakes a broad range of initiatives that respond to emerging needs and issues in the treatment field. SAMHSA has funded the Network to upgrade the skills of practitioners and health professionals, and to disseminate the latest science to

the treatment community. The Network expends these resources to create products and services that are timely and relevant to the many disciplines represented by the addiction treatment workforce.

Serving the 50 U.S. states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and the Pacific Islands, the ATTC Network operates as 14 individual regional centers and a national office. The regional centers focus on meeting the unique needs in their areas while supporting national initiatives. The national office implements national initiatives and concurrently supports and promotes individual regional efforts.

At present, the ATTC Network does not offer specific TB training for substance abuse treatment agencies or their staff. However, CSAT staff has met with the ATTC Network Steering Committee, and all 14 regional sites have offered to implement a training curriculum that meets CDC standards and participate in the five-year *National Strategic Plan for TB Training and Education*.

Resources for Providers to HIV Patients

■ ***HIV Infection and AIDS: Information for TB Health Care Workers***

New York City Bureau of Tuberculosis Control, Education and Training Unit

This training curriculum targets TB workers and provides HIV/AIDS information and skills-building activities. The three volumes include the participant manual and worksheets, role-play scenarios, and the instructor's guide to presenting the curriculum. In addition to HIV/AIDS 101 information, the curriculum addresses confidentiality, referrals to support services, and HIV testing. It also includes a table of drug interactions between HIV/AIDS medications and anti-tuberculosis drugs.

■ **Texas Department of Health—Training Collaboration**

*Texas Department of Health—TB Education Center (TBEC),
and Bureau of HIV and STD/Training and Public Education Branch (TPEB)*

These two agencies within the Texas Department of Health work collaboratively to provide cross-training for HIV prevention workers and TB healthcare providers. For example, HIV prevention personnel have been provided with the *TB Self-Study Modules* produced by the CDC. In 2001, TBEC and TPEB began collaborating on curriculum design and development. Other state and big-city TB control programs have similarly developed outreach and information tools to educate healthcare providers who manage HIV-positive patients about TB.

■ **AIDS Education and Training Centers**

The 11 regional AIDS Education and Training Centers (AETCs), funded by the Health Resources and Services Administration HIV/AIDS Bureau under the Ryan White Care Act, are responsible for providing training and education to primary care providers of HIV-positive patients, especially those from underserved communities. Many AETCs have developed TB training for clinicians, and several have partnered with the CDC-funded national TB Model Centers. These include the Midwest AETC, with cross-training materials; Pacific AETC, with curricula for correctional facilities and jointly-sponsored training programs (developed with the Francis J. Curry National Tuberculosis Center); New York/New Jersey AETC, with a course on TB in the HIV-positive patient (developed with the New Jersey Medical School National Tuberculosis Center); and Southeast AETC, with a two-day intensive clinical course. The AETC website is maintained as a National Resource Center offering materials and resources that contain information on TB. It may be accessed at: <http://www.aids-etc.org/>

■ **Centers for Disease Control and Prevention (CDC)**

CDC offers training manuals and other materials, which are available on the CDC website. An example is a pamphlet produced in 2002 entitled *TB and HIV Coinfection: What Can HIV/AIDS Service Organizations Do to Help?* The website address is: <http://www.cdc.gov>

■ ***TB & HIV: An Online Course for Clinicians***

Francis J. Curry National TB Center

This is an online course on TB and HIV, aimed at clinicians. Continuing medical education credits are available for the course.

■ ***TB in the HIV-Positive Patient***

*New Jersey Medical School National TB Center
and New Jersey AIDS Education and Training Center*

This course focuses on the management of TB in patients who are on complex treatment regimens. It is designed for physicians, advanced practice nurses, physician assistants, and registered nurses.

■ ***Treatment of TB in Adult and Adolescent Patients Co-infected with the Human Immunodeficiency Virus***

New Jersey Medical School National TB Center

This information card was produced in 2001.

■ **HIV InSite**

An excellent informational resource for the HIV clinician is HIV InSite's website. In the HIV Knowledge Base section, a document entitled *Infections Associated with HIV*, under "Tuberculosis: Related Resources" in the Tuberculosis section, has listings of updates, articles, book chapters, guidelines and reports. The website address is: <http://www.hivinsite.ucsf.edu>

■ **Collaborations and Additional Resources for Providers to HIV Patients**

Partnership with HIV programs is a potential resource. For example, the guidance for the CDC HIV cooperative agreements with state and local health departments stipulates that cooperative agreement funds may be used to provide tuberculin skin tests. More important, perhaps, the HIV Prevention Community Planning process provides a formal avenue for collaboration and cooperation between TB and HIV providers, as well as for ensuring community participation in setting priorities. TB and HIV program managers in each state should also investigate the availability of training materials and opportunities through the local and state health departments.

V. NEEDS AND BARRIERS

Barriers to creating and sustaining TB training and education programs for all of these target groups include:

- Shortage of staff, time, and financial resources on the part of both the agencies that produce training and the agencies that are target audiences
- Lack of program investment because agencies lack interest in TB issues (other than workplace safety issues) or do not perceive the need for TB training and education. Reasons can include low local incidence of TB; misperception of the problem; bias against the "typical" TB patient, and the wish to avoid the personalities and issues of these individuals; and unwillingness to deal with the infection control risk presented by these patients

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- Lack of visible participation by agencies' leadership (i.e., directors rarely attend training activities)
- Lack of institutional support from managers that would encourage participants to continue developing their recently learned skills after the training
- Difficulty of releasing people from work to attend training programs because of downsizing and other staffing issues
- Inability to attract MDs because they do not perceive the need for training
- Limited expertise on the part of training program providers regarding these high-risk patients, as well as a lack of designated trainers who are knowledgeable about the intricacies of these populations
- Duplication of effort
- Difficulty of competing with major medical meetings and training courses supported by industry, which offer many amenities to attendees

All programs working with the high-risk populations described in this position paper need designated training on TB. Although many programs offer some form of cross-training, such as TB programs that provide TB training to substance abuse program staff and vice versa, this differs from training that enables TB providers to develop cultural competence skills to work more effectively with specific target populations.

Providers to Persons Experiencing Homelessness

TB education and training for providers serving the homeless are well established in some communities and practically nonexistent in others. Two levels of training are required. At the basic level, all staff of agencies serving homeless populations should be trained in signs and symptoms of TB, and should be cognizant of institutional policies that they can rely on for responding to suspect cases. On the second level, many shelters require training and technical assistance to develop appropriate institutional policies regarding TB.

Other than a position paper by the Advisory Council for the Elimination of Tuberculosis on TB among the homeless, there is little didactic material available for this group of providers. Videos about TB for both homeless persons and their providers might be helpful. A flip chart and booklet on TB with very simple pictures, which the Massachusetts Department of Public Health developed for prisons, have been very useful for the education of front-line staff.

Those who work with people experiencing homelessness need to be well trained so they can recognize the signs and symptoms of TB infection. Social service providers need to know how TB is transmitted, ways in which they can prevent the infection from spreading, and how to protect themselves from the infection. They also need to be aware of treatment options for those who do become symptomatic. Both medical and nonmedical Health Care for Homeless (HCH) staff are an important resource for shelters, since they have often gained trust among their clients and provide a consistent link to other vital services that a homeless person might need.

Many homeless shelters are in operation 24 hours a day, thus presenting two challenges: 1) insufficient time for training and 2) inability to train all staff at one time. Although a variety of educational materials are available, the lack of time made available for training is an issue. An additional barrier to training staff is lack of funding for the training.

Providers to Substance Abusers

Providers working in addiction treatment programs can be difficult to reach with TB information, because of both the need to maintain strict confidentiality for clients and the limited amount of staff time available for any of a number of pressing training issues. Still, at a minimum, all staff of agencies serving addicted populations should be trained in signs and symptoms of TB, and they should be aware of the role local TB programs play in responding to suspect cases. Further, some residential facilities and many methadone programs should be provided technical assistance to develop appropriate institutional policies regarding TB control and treatment, including recognition and potential treatment of LTBI.

Some TB training needs of this group are:

- Increased knowledge of the connection between alcohol or other drug abuse and TB
- Increased information on risk, recognition, and response to TB
- Increased knowledge of TB and how it is contracted by AOD treatment clients
- Improved skills related to TB screening and assessment methods
- Improved skills for disseminating knowledge and assisting patients in personalizing risk and practicing harm reduction techniques
- Increased knowledge of legal issues as they pertain to patient confidentiality
- Increased knowledge regarding the importance of DOT and treatment completion for curing patients, stopping disease transmission, and preventing drug resistance

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Resources needed for these providers include simple lists of available TB training and education materials that are appropriate for staff in SA-related settings. These lists should be provided to the facility-level staff who organize local training and education. More complicated lists, such as the CDC's *Tuberculosis Education and Training Resource Website* (see Attachment C), exist as searchable databases, which can be customized for specific target audiences, including staff working in addiction programs. However, even a simple list that makes a few concrete suggestions would be encouraging. Brochures, like the CDC's HIV/TB co-infection pamphlet (which is listed on the CDC Resource Website), could serve a similar purpose.

Providers to HIV Patients

Because of the complexity of issues facing HIV care providers, it is important to establish dual training tracks. The first track would focus on the treatment of the two infections, and would provide clinicians with up-to-date information on such topics as TB and HIV pathogenesis and symptomology, TB and HIV medications, treatment protocols, and drug interactions. This training would enable clinicians treating HIV-positive patients or TB patients to understand the risks of and possibility of co-infection.

The second track would be designed for nonclinicians and would provide training on such topics as TB and HIV transmission, pathogenesis, infection control symptomology, and testing protocols. Since nonlicensed healthcare workers often have the initial and sometimes most intimate contact with at-risk individuals, it is important for these non-clinicians to be able to recognize symptoms associated with TB and HIV infection, and behaviors that put individuals at risk for HIV and TB.

Because of public health funding cuts and reorganization, more of the responsibility for delivering traditional TB-related public health services is being shared by HIV providers. There is a need to increase the understanding of recommended TB practice among HIV providers by:

- Educating HIV providers regarding the public health approach to TB contact follow-up of HIV-infected clients
- Defining what is meant by co-management of HIV/TB patients on DOT, and how providers can cooperate and collaborate to treat both diseases
- Educating HIV providers about the TB reporting and confirming criteria for bacteriologically negative TB suspects (clinical evidence/improvement)

Except in jurisdictions where there is a high local incidence of TB, the trend is usually to incorporate TB/HIV training into overall HIV training activities, rather than to focus on specific

TB training events. This strategy can be effective, especially in reaching otherwise unreachable providers.

VI. STRATEGIC OBJECTIVES

The strategic objectives below are suggested as specific steps that can be taken toward the accomplishment of the five broad goals that have been defined for the *National Strategic Plan for TB Training and Education*. Considering the overarching aims of the Strategic Plan and the current state of TB training and education efforts for providers serving high-risk populations, this workgroup has selected the following objectives as reasonable and feasible priorities for the next five years. They provide a means of beginning to address the issues identified in Section V, Needs and Barriers.

By intention, the strategic objectives do not specify who will do what. Instead, they describe a desired outcome and identify the types of organizations that would need to be engaged if the strategic objective is to be achieved. The workgroup charges the Implementation Committee of the Strategic Plan to secure commitment and action from the necessary agencies during the coming five years.

Strategic Objective 1

Desired Outcome: Development, adoption, and promotion of TB core competency recommendations for clinical staff from HIV, addiction, or homelessness programs, and ongoing delivery of TB training and education to these audiences

Strategies:

National TB agencies should work with national organizations that represent or influence clinicians associated with HIV, addiction, or homelessness programs to develop, adopt, and promote recommendations for core competencies.

National TB training and education agencies should develop training activities and materials keyed to the consensus core competency recommendations.

National agencies concerned with HIV, addiction, and homelessness should regularly include TB training and educational opportunities at conferences and meetings.

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HIV, addiction, and homelessness facilities, and related organizations, should adopt the recommendations and make opportunities for staff to receive appropriate TB training and education.

State and local TB programs should collaborate with local facilities and organizations to make TB training and education opportunities available to these target audiences.

Strategic Objective 2

Desired Outcome: Development, adoption, and promotion of TB core competency recommendations for administrators and non-clinical staff from HIV, addiction, or homelessness programs, and ongoing delivery of TB training and education to this audience

Strategies:

National TB agencies should work with national organizations that represent or influence non-clinical staff associated with HIV, addiction, or homelessness programs to develop, adopt, and promote recommendations for core competencies.

National TB training and education agencies should develop training courses, activities, and materials keyed to the consensus core competency recommendations.

National HIV, addiction, and homelessness agencies should regularly include TB educational opportunities at conferences and meetings.

HIV, addiction, and homelessness facilities, and related organizations, should adopt the recommendations and make opportunities for staff to receive appropriate training and education.

State and local TB programs should collaborate with local facilities and organizations to make opportunities available to key target audiences, such as staff associated with HIV, addiction, or homelessness.

Strategic Objective 3

Desired Outcome: Inclusion of TB core competency recommendations in state-level HIV plans

Strategies:

National TB organizations should work with national organizations that develop or influence state-level HIV plans to include explicit TB training and education recommendations for staff in agencies and programs associated with HIV.

State-level HIV planning bodies should incorporate locally appropriate TB training and education recommendations into their state HIV plans.

VII. CLOSING STATEMENT

Providers who work with persons experiencing homelessness, substance abusers, and HIV-infected persons are critical target audiences for TB training and education because individuals in these groups, and the providers who serve them, are at substantially higher risk for TB infection and disease than the general population. Yet these groups are confronted by many complex problems, and as a result, the agencies that serve them frequently do not give TB the attention it merits.

To be effective, TB training and education for these audiences must deal specifically with the needs, issues, and culture of the particular population, which can vary from locality to locality. In addition, training needs to be provided along three tracks: one directed at healthcare providers, one at front-line staff who interact directly with the clients being served, and one at program managers and policy makers in agencies that work with these populations.

The challenge is not only to provide TB training and education, but also to create a demand for it. Both those who can fund or approve training activities and the intended training recipients must be persuaded that TB is a priority issue and shown how training will benefit them and their constituents.

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POSITION PAPER • WORKGROUP 5

TUBERCULOSIS TRAINING AND EDUCATION FOR

Providers Serving Foreign-Born Patients • International Medical Graduates

I. INTRODUCTION

This paper explains the necessity of specifically targeting providers serving foreign-born patients and international medical graduates (IMGs) for tuberculosis (TB) training and education. Foreign-born persons have a higher risk of contracting TB than U.S.-born persons. Although many issues related to TB are similar for all foreign-born populations, regardless of their country of origin, these groups are highly diverse in language, culture, socioeconomic circumstances, and traditions and attitudes regarding health care; thus, cultural competency is an important concern for providers who work with them. IMGs are included in this workgroup's purview because similar cultural considerations apply when addressing their training needs; because many of them practice in immigrant communities; and because TB control practices might be different in the countries where they received their medical education.

The goals of the workgroup were to examine the current scope of effort in TB training and education for IMGs and providers serving foreign-born patients, and to develop strategies that could lead to a more comprehensive and coordinated approach to these efforts. In this paper, the workgroup:

- Profiles the target audiences, identifying the job categories in the provider population that would be appropriate recipients of TB training and education
- Defines issues and problems relevant to TB training and education for the target audiences
- Identifies programs, models, and organizations that have been successful in reaching these audiences, and resources available for this purpose
- Catalogues the target audiences' training needs, as well as the barriers that impede efforts to meet those needs
- Presents strategic objectives, related to the goals of the Strategic Plan, that are designed to address the issues raised

The original version of this paper was prepared for the *National Strategic Plan for Tuberculosis Training and Education* and was published in that document in January 1999. For the current version of the Strategic Plan, the paper has been substantially revised and updated.

II. TARGET AUDIENCES

Providers Serving Foreign-Born Patients

Because foreign-born persons are at higher risk for TB than U.S. born individuals, healthcare providers who serve foreign-born persons are an important target group whether they are IMGs or U.S. trained. The following groups are examples of “providers serving foreign-born patients”:

Providers who serve foreign-born populations within the U.S. constitute a sizable group. Though foreign-born persons are seen throughout the U.S. healthcare system, there are providers who serve foreign-born individuals in large numbers. These providers may do so by virtue of interest, training, location, personal or cultural background, or affiliation with a health center that serves many foreign-born persons. The term “provider” refers here primarily to physicians, although non-physician providers, such as physician assistants, nurse practitioners, nurses, and other healthcare workers, are also recognized as significant sources of health care.

Providers of health care for refugees often work at refugee health centers and social service agencies. In many communities, this group overlaps with the first, because primary care providers in general settings are expected to interact with the refugees. For refugees unaccustomed to the U.S. healthcare system, emergency medical departments and urgent care centers are a major source of health care.

Providers at migrant health clinics are the most frequently used healthcare option for migrant farm workers. Many key providers for migrant workers are organized through the Migrant Health Network. This group may overlap with the first, as many community health centers that focus on particular foreign populations also may treat migrants who belong to that group.

Social service organizations that focus on foreign-born populations and/or migrants exist in many local communities. Examples include English as a Second Language programs, as well as groups specific to particular nationalities or ethnicities. These community-based organizations represent a potential resource for TB control programs and should be considered during the development of TB training and education materials and strategies.

Civil surgeons are physicians who have been approved by the U.S. Department of Homeland Security, U.S. Citizenship and Immigration Services (CIS) to conduct screenings of infectious diseases, including TB, for immigrants who wish to apply for adjustment of their immigration status. There are approximately 3,000 civil surgeons in the U.S.

International Medical Graduates

IMGs are physicians who have graduated from medical schools outside of the U.S. and Canada. Of the physicians included in the 1996 American Medical Association's Physician Masterfile, 23 percent were IMGs.¹ In addition, it was anticipated that approximately 5,000 IMGs would enter the physician pool each year from 1998 to 2020.² Of particular concern when it comes to the targeting of TB training and education are those IMGs who practice in high-incidence areas, often with foreign-born patients of their own ethnic group.

III. DEFINING THE ISSUE

Providers Serving Foreign-born Patients

More than 30 million non-U.S. born individuals resided in the United States in 2000, according to U.S. Census data.³ It is likely that many, if not most, U.S. healthcare providers have provided care for one or more foreign-born individuals. Providers serving foreign-born patients need to be targeted for TB training because of the specific challenges related to diagnosing and treating foreign-born patients, and also because most TB in the U.S. occurs in foreign-born individuals.

In 2002, 51 percent of all TB cases reported in the U.S. occurred in foreign-born persons. Though U.S. TB case rates have steadily declined since 1992, the decline has been much more pronounced for U.S.-born individuals. The rate of TB among foreign-born persons in the U.S. is approximately eight times greater than that for U.S.-born persons. Nor is the issue of foreign-born TB limited to a few jurisdictions. In 1992, foreign-born individuals accounted for more than 50 percent of all TB cases in four states. By 2002, this number had risen to 22 states.

Most TB in foreign-born persons results from reactivation of remotely acquired infection, though TB transmission also occurs in the U.S. For all immigrant groups, TB risk appears highest in the first years after arrival in the U.S. In some groups, the risk decreases rapidly over time, whereas in others it remains high for up to 20 years. The risk of disease among the foreign-born also appears to depend on the person's current age and age at the time of immigration; younger persons and those who immigrated at younger ages are at lower risk of subsequent TB.

The number of foreign-born persons in the U.S. with latent TB infection (LTBI) is unknown. However, it is estimated that more than 7 million foreign-born persons in the U.S. may be at risk of reactivation of remotely acquired infection.⁴ The level of LTBI is especially high among refugees. For example, domestic screening data from one state (Minnesota) indicates that approximately half of all refugees are infected with TB upon their arrival in the U.S.⁵

In addition to recognizing the increased risk of TB for foreign-born patients, providers need to be aware of certain clinical issues that are different for foreign-born and U.S.-born individuals. For example, drug-resistant TB is more common among foreign-born persons than among those born in the U.S. Moreover, providers should be sensitive to the different cultures and languages of their patients. The interaction between providers and patients can be complicated by difficulties in understanding each other or differences in philosophies of health care.

Migrant workers pose special challenges for TB control. The CDC defines a migrant worker as “any individual whose principal employment is in agriculture on a seasonal basis, and who establishes for the purpose of such employment a temporary place of abode.” Because of the mobility of migrant workers and their families within the U.S. and between countries, both interstate and international coordination are necessary.

Civil surgeons annually provide examinations for thousands of foreign-born individuals who are seeking to adjust their visa status. These examinations follow U.S. Public Health Service guidelines and are required of all persons wishing to acquire permanent residency status in the U.S. Part of the screening is for TB infection and disease, yet civil surgeons are not required to have specific initial or ongoing training in TB control or treatment principles. It is imperative that training and educational materials be made available for this important group of providers.

It is important to reach healthcare providers of the foreign-born with TB education and training because, properly equipped with knowledge of TB, they can screen and treat LTBI more effectively and diagnose cases of active TB at an earlier stage, thereby decreasing the risk of further transmission in the community.

International Medical Graduates

IMGs are selected as a target group for two reasons. First, their training in TB treatment and control may differ from current U.S. recommendations and practices. Approximately 80 percent of the world’s population currently receives BCG vaccination at or shortly after birth for the prevention of TB. For most countries, BCG vaccination comprises an important part of the national TB control

strategy. Tuberculin skin testing, with treatment of LTBI when indicated, is not used except in limited settings.⁶ In contrast, the U.S. TB control strategy relies on tuberculin skin testing and treatment of LTBI as integral parts of TB control. BCG vaccination is not recommended except under special circumstances.⁷ IMGs practicing in the U.S. might not be familiar with current U.S. recommendations and practices, such as the importance of selected tuberculin skin testing and treatment even in populations previously vaccinated with BCG.

Second, targeting IMGs for TB training and education may be one important way to reach healthcare providers who care for substantial numbers of foreign-born individuals at risk for TB. When in need of health care, foreign-born persons frequently seek out IMGs who share their language, cultural, and ethnic backgrounds.

IV. SUCCESSES AND RESOURCES

The organizations, programs, and projects described below are examples of successful approaches and resources for providing TB training and education to the target audiences:

■ ***Tuberculosis Education and Training Resource Website***
Centers for Disease Control and Prevention (CDC)

Maintained by CDC, the *Tuberculosis Education and Training Resource Website* is an online searchable database of TB education and training materials and resources currently available for providers, patients, and the general public. It is an excellent place to begin when searching for TB training and education resources. The website evolved from the CDC's print document, the *Tuberculosis Education and Training Resource Guide*, and incorporates the resource inventory compiled for the first Strategic Plan. Listings include resources that apply to particular audiences, including IMGs and providers to foreign-born populations. The website address is:
<http://www.findtbresources.org>

All agencies involved in TB control are encouraged to make regular use of this website, both to list new products they have produced and to ascertain what materials are already available. This participation will make the website an even more effective means of conserving funds, coordinating efforts, and sharing resources. For more information, refer to Attachment C.

■ ***Center for Immigrant Health***
New York University School of Medicine

The Center for Immigrant Health (CIH) was established in 1989 as the New York Task Force on Immigrant Health and became the Center for Immigrant Health in 2000. CIH is a partnership of

community members, practitioners, researchers, social scientists, policy makers, and advocates. CIH facilitates the delivery of epidemiologically informed and culturally and linguistically sensitive health services. Several CIH initiatives address TB:

- ***Tuberculosis Education Screening and Prevention Program.*** This eight-year project addresses the gaps in TB control through education, early screening and diagnosis, prophylaxis, treatment, and follow-up, in immigrant communities with high infection rates. The outreach is conducted in coordination with several ethnic community-based organizations (CBOs) to specifically target high-risk immigrants. Specific programs target newcomer adolescents in school-based interventions.
- ***Community Tuberculosis Prevention Program.*** This program involves outreach, education, screening, and intensive case management. The CIH trains and supervises bilingual and bicultural outreach workers, who identify and screen persons who have had no prior contact with the healthcare system. Case management and other support services are provided in the clients' native languages.
- ***Social Marketing Campaign.*** This campaign provides targeted TB education to providers serving the foreign born in their offices and through community-based educational meetings.

■ **EthnoMed Website, Tuberculosis Home Page**

Harborview Medical Center, University of Washington, Seattle, WA

The objective of EthnoMed is to make information about culture, language, health, illness, and community resources directly accessible to healthcare providers who see patients from different refugee groups. Ethnic community profiles have been developed with, and reviewed by, members of Seattle's ethnic organizations. EthnoMed's Tuberculosis Home Page contains specific information about how different cultures perceive TB, as well as suggestions on how to provide more effective TB care to persons from different cultures. "Pearls of Wisdom" for clinicians are offered on such topics as "Compliance with INH Prophylaxis for Tuberculosis." In addition, a variety of translated patient education materials can be downloaded and printed from the website. The EthnoMed Tuberculosis Home Page can be accessed at:

http://ethnomed.org/ethnomed/clin_topics/tb/

■ **Association of Asian Pacific Community Health Organizations (AAPCHO)**

Oakland, CA

The mission of AAPCHO is to promote advocacy, collaboration, and leadership that improves the health status and healthcare access of Asian Americans, Native Hawaiians, and Pacific Islanders within the U.S., its territories, and freely associated states, primarily through its member community health clinics. The organization's vision is to establish a standard of excellence for community-

based health care that is equitable, affordable, accessible, and culturally and linguistically appropriate to the people it serves. Free publications include the *Cross-Cultural Tuberculosis Guide* and *A Functional Manual for Providing Linguistically Competent Health Care Services as Developed by a Community Health Center*, designed to help providers ensure that persons with limited English proficiency (LEP) have access to healthcare services. AAPCHO sponsors a listserv to give primary healthcare providers, general healthcare providers, health administrators, and medical directors a forum in which to discuss issues related to primary care service delivery to Asian Americans and Pacific Islanders.

■ **Center for Cross Cultural Health**

Minneapolis, MN

The mission of the Center for Cross Cultural Health is to integrate the role of culture in improving health. The Center's vision is to ensure that diverse populations receive culturally competent and sensitive health and human services. To achieve this goal, the Center is actively involved in the education and training of health and human service providers and organizations in Minnesota and beyond. The Center is also a research and information resource. Through information sharing, training, organizational assessments, and research, the Center works to develop culturally competent individuals, organizations, systems, and societies. Examples of training modules include cross-cultural communication, working with interpreters, and cross-cultural mental health. The Center also offers individualized training upon request. Available publications include *Six Steps Toward Cultural Competence*, a practical guide to help health care providers and others become more culturally competent, and detailed community profiles of selected cultural groups designed to help providers learn more about specific cultures.

■ **CureTB**

San Diego County, CA, Health and Human Services Agency

This program aims to improve continuity of care for persons with TB and their contacts who travel between the U.S. and Mexico. In addition to providing direct guidance to patients, CureTB accepts patient referrals from providers in both countries and acts as an information link between them. Services are available to all patients and providers throughout the two countries. For information, see the CureTB website: <http://www.curetb.org>

■ **TB Net**

Migrant Clinicians Network

A program of the Migrant Clinicians Network, TB Net is a bi-national TB patient-tracking and referral project. TB Net helps migrant TB patients complete treatment in three ways. The program supplies TB clinics with wallet-sized portable treatment records that patients can easily carry

wherever they go. TB Net maintains a central repository of the enrolled patients' medical records and a toll-free line that can be used to request up-to-date information. Patients can also call TB Net on the toll-free line for help in locating treatment facilities at their next destination. These three systems work together to coordinate the continuous treatment of migrant TB patients. The program operates free of charge to both clinic and patient. For information, see the TB Net website: <http://www.migrantclinician.org/programs/TBNet/tb.html>

■ **State Health Department Tuberculosis and Refugee Health Websites**

An increasing number of state health departments have established websites that include a variety of types of information about TB and educational opportunities. Two examples are the websites for Florida (<http://www.doh.state.fl.us>) and Massachusetts (<http://www.state.ma.us/dph>).

■ ***Tuberculosis Training for the International Medical Graduate***

Charles P. Felton National Tuberculosis Center at Harlem Hospital, New York, NY

Designed for residency program directors, health administrators, and TB control programs, this 26-page document offers advice on providing educational programs that help IMGs update their knowledge and skills in accordance with current TB control guidelines. Topics include needs assessments, planning educational programs, and training program components. Sample needs assessment and evaluation questionnaires are provided in addition to a list of other sources of TB educational materials appropriate for IMGs. The document can be downloaded from the Center's website at: <http://www.harlemtbcenter.org>

■ **Dade County Department of Health**

Dade County, FL

For little cost, Dade County Department of Health partners with a local university TB training program that recruits foreign physicians. Trainees spend two to three months with the TB program.

V. NEEDS AND BARRIERS

Providers Serving Foreign-Born Patients

The training and educational materials developed specifically for providers serving foreign-born patients need to address the following factors:

Clinical challenges of treating foreign-born patients. These challenges include evaluation of patients vaccinated with BCG, diagnosis of extrapulmonary TB disease, and the use of appropriate

treatment regimens for populations with drug-resistant TB. Primary care providers routinely handle a large variety of health issues and have limited time to devote to maintaining current knowledge specific to TB. Therefore, strategies should be created that give providers access to up-to-date TB information when needed.

Cultural issues. Providers need the skills to work in congruence with the different cultures and potentially different health beliefs of their foreign-born patients. For instance, there might be cultural barriers that discourage foreign-born individuals from seeking TB screening for asymptomatic conditions or from complying with treatment for latent TB infection. TB carries a strong social stigma in many cultures, and this can interfere with an individual's willingness to seek medical care or adhere to treatment regimens. Providers should have access to information that enables them to anticipate the effects of social stigma on the TB patient's health behaviors.

Language issues. Providers who cannot speak the languages of their foreign-born patients must be able to work effectively through an interpreter. In these cases, and in cases where English is not the patient's first language, subtleties in language might not be adequately communicated, which can hamper effective treatment. Some health departments lack multilingual or multicultural outreach workers. Also, many providers are not aware of, or do not have access to, translated patient health education materials, especially for numerous Asian and Pacific Islander, Eastern European, and African languages. Therefore, strategies need to be developed to give providers easy access to resources that supply translated patient education materials about TB.

Collaborations with community-based organizations. CBOs can be an important resource for contacting and providing TB services to foreign-born persons. However, CBOs are likely to require educational support and oversight.

Other issues. Providers should also be aware of other issues that may be relevant for some foreign-born patients, such as fear of deportation if diagnosed with TB, financial difficulties that impede access to health care or adherence to treatment, and unfamiliarity with the U.S. healthcare system.

International Medical Graduates

Based on the findings of this workgroup, there seems to be a paucity of educational materials specifically targeting IMGs. Where materials do exist, it appears that IMGs do not have access to them or are unaware of them. When developing training and educational materials for IMGs, the following factors need to be taken into consideration:

Cultural issues. Training and educational materials need to be produced in a culturally competent manner. The focus should be as much on changing values and attitudes as on changing knowledge, especially with regard to controversial issues such as the BCG vaccination.

The identity of the messenger is a key factor. IMGs are more likely to accept information that is delivered by individuals who are trusted and well respected in their communities. A train-the-trainer format is a possible training strategy. Materials need to address not only clinical matters, but also issues of patient–provider interaction.

Language issues. Lectures and written materials should be created with the awareness that English is not the native language of many IMGs; consequently, nuances in the language may greatly impact their understanding of TB concepts.

Addressing the Needs and Barriers

The following strategies are possible ways to enhance TB training and education for IMGs and providers serving foreign-born patients:

- Include information on current TB treatment and control recommendations in national licensing examinations, medical residencies, continuing medical education (CME) courses, and their related study materials
- Develop lists of regional and local TB experts willing to speak at educational forums such as medical grand rounds, medical society meetings, continuing medical education courses, and nursing meetings. Individuals responsible for planning educational programs should be made aware of TB resources in their communities and areas
- Include summaries of TB treatment and control recommendations on electronic-based medical information systems available at many hospitals. If possible, links to websites with additional information should be included
- Conduct outreach to IMGs’ professional organizations to reach IMGs who are no longer in their residency period. In addition to being a training opportunity, collaboration with IMGs’ professional organizations will strengthen the linkages between the public health system and these organizations
- Collaborate with state and local health department programs, as well as community-based organizations that provide other medical and social services to foreign-born persons. These collaborations should include the development of culturally and linguistically appropriate patient education materials where needed.

VI. STRATEGIC OBJECTIVES

The strategic objectives below are suggested as specific steps that can be taken toward the accomplishment of the five broad goals that have been defined for the *National Strategic Plan for TB Training and Education*. Considering the overarching aims of the Strategic Plan and the current state of TB training and education efforts for international medical graduates and providers serving foreign-born patients, this workgroup has selected the following objectives as reasonable and feasible priorities for the next five years. They provide a means of beginning to address the issues identified in Section V, Needs and Barriers.

By intention, the strategic objectives do not specify who will do what. Instead, they describe a desired outcome and identify the types of organizations that would need to be engaged if the strategic objective is to be achieved. The workgroup charges the Implementation Committee of the Strategic Plan to secure commitment and action from the necessary agencies during the coming five years.

Strategic Objective 1

Desired Outcome: Increased TB education, including curricula that emphasize the importance of addressing TB in foreign-born populations, for medical residents, medical students, nursing students, and other students planning healthcare careers

Strategies:

National TB agencies should work with national agencies that represent medical residency programs in internal medicine, family practice, and pediatrics, and fellowship programs in infectious disease and pulmonology, to produce and promote adoption of TB curricula appropriate for each discipline into the standard curricula.

National TB should similarly work with national agencies that represent medical, nursing, and allied health schools to develop curricula for schools. In all efforts, special attention should be paid to clinical details that are over-represented in foreign-born populations.

Strategic Objective 2

Desired Outcome: Regular and ongoing inclusion of TB topics, including topics that emphasize the importance of addressing TB in foreign-born populations, in exam questions for board certifications, and for the United States Medical Licensing Exam (USMLE) and its supporting study materials

Strategies:

National agencies responsible for board certification examinations for internal medicine, infectious disease, family practice, pediatrics, and pulmonology should regularly include TB-related questions in both their testing and study materials.

The national board responsible for the USMLE (which must be taken by all physicians, including IMGs) should regularly include TB-related questions in both its testing and study materials.

In all efforts, special attention should be paid to clinical details that are over-represented in foreign-born populations.

Strategic Objective 3

Desired Outcome: Development, adoption, and promotion of TB core competency recommendations for clinicians involved in migrant health care, and ongoing delivery of TB training and education to this audience

Strategies:

National TB agencies should work with national organizations that represent or influence clinicians involved in migrant health care to develop, adopt, and promote recommendations for the achievement of core competencies.

National TB training and education agencies should develop training courses, activities, and materials keyed to the consensus core competency recommendations.

National migrant health agencies should regularly include TB training and educational opportunities at conferences and meetings.

Strategic Objective 4

Desired Outcome: Development of a database that provides up-to-date information on clinical issues related to TB in foreign-born populations and that can be accessed through various technological devices

Strategy:

National producers of TB training and education should partner with a database vendor currently used by hospitals to provide house staff with instant access to up-to-date clinical information through web-linked computers or handheld devices.

Strategic Objective 5

Desired Outcome: Increased availability of cultural competency materials that specifically address TB as a disease with unique social consequences for many foreign-born persons, as well as increased interim use of general cultural competency resources among providers who serve foreign-born populations

Strategies:

National producers of TB training and education materials should produce, maintain, and make available regularly updated, culturally appropriate materials that address TB issues related to foreign-born populations, specifically the social marginalization and isolation that can result from community knowledge of a TB diagnosis among certain ethnic or national groups.

In the interim, national TB training and education organizations should collaborate with state and local TB programs to promote access to, and use of, existing general cultural competency materials until TB-specific alternatives become widely available.

National TB training and education organizations, as well as state and local TB programs, should use the CDC *TB Education and Training Resource Website* to list and access materials and training courses on cultural competency.

Strategic Objective 6

Desired Outcome: Development, adoption, and promotion of TB core competency recommendations for CBO staff working with foreign-born populations, and ongoing delivery of TB training and education to this audience, so that CBO staff can act as outreach workers among their client population

Strategies:

National TB organizations should develop, adopt, and promote recommendations on TB core competencies for CBO staff. Special attention should be paid to clinical details that are over-represented in foreign-born populations.

National producers of TB training and education materials should develop and maintain appropriate materials for this audience.

State and local TB programs should collaborate with local CBOs associated with at-risk populations to deliver training regularly to CBO staff.

Strategic Objective 7

Desired Outcome: Development, adoption, and promotion of TB core competency recommendations for providers of domestic health assessments for newly arrived refugees, and ongoing delivery of TB training and education to this audience

Strategies:

National TB agencies should work with national organizations that represent or influence clinicians who provide refugee health screening to develop, adopt, and promote recommendations for TB core competencies to be achieved through TB training and education. Special attention should be paid to clinical details that are over-represented in foreign-born populations.

State and local TB control programs should work with the Association of Refugee Health Coordinators and their state health department's refugee health program to provide core competency training to clinicians who provide refugee health screening.

Strategic Objective 8

Desired Outcome: Development, adoption, and promotion of TB core competency recommendations for civil surgeons who provide medical screening exams to persons applying for visa status adjustments or U.S. citizenship, and ongoing delivery of TB training and education to this audience

Strategies:

National TB agencies should work with national organizations that represent or influence civil surgeons to develop, adopt, and promote recommendations for TB core competencies, and to ensure that TB screening protocols are included. Special attention should be paid to clinical details that are over-represented in foreign-born populations.

National TB organizations should ensure that TB screening protocols consistent with national guidelines are included in protocols and educational materials supplied to civil surgeons.

VII. CLOSING STATEMENT

Because foreign-born persons are at high risk for TB infection and disease, it is crucial for the healthcare providers who serve them to be knowledgeable and skilled with regard to TB. In addition to having clinical competencies, providers need to know how to work with their patients in culturally and linguistically appropriate ways.

Ongoing TB training and education is especially important for IMGs, for providers who work in localities with sizable foreign-born populations, for those who serve migrant workers, and for those who provide medical assessments for immigrants entering the U.S. It should be recognized, however, that foreign-born persons live in communities throughout the U.S. and that any provider can encounter such individuals. Therefore, education for persons entering healthcare professions should routinely include TB information, with an emphasis on information that addresses clinical and cultural issues of TB in foreign-born populations.

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POSITION PAPER • WORKGROUP 6

TUBERCULOSIS TRAINING AND EDUCATION FOR

International Liaison

I. INTRODUCTION

Through this paper, the International Workgroup of the *National Strategic Plan for Tuberculosis Education and Training* promotes awareness and coordination of tuberculosis (TB) training and education efforts provided by U.S.-based organizations outside the U.S. In addition, the workgroup recognizes the need for internationally cognizant training among U.S.-based organizations responsible for TB screening or treatment that occurs internationally or involves individuals who may have been exposed to TB outside the U.S. The workgroup encourages enhancement of training capacity for all these agencies and, in this paper, outlines ideas for enhanced activities.

The goals of the workgroup were to identify, document, and describe the international partners involved in TB education and training, as well as significant international TB training initiatives and activities sponsored by these organizations. In this paper, the workgroup:

- Catalogues the principal organizations involved in TB training and education at the international level
- Defines the place of U.S.-based groups within this broader field of international TB training and education
- Encourages collaboration and suggests practical starting points from which U.S.-based groups can share TB training and education resources with the global community
- Presents strategic objectives related to the goals of the Strategic Plan

The original version of this paper was prepared for the *National Strategic Plan for Tuberculosis Training and Education* and was published in that document in January 1999. For the current version, the paper has been substantially revised and updated. It challenges U.S.-based groups to be cognizant of ongoing international efforts and coordinating bodies. In this way, U.S.-based groups

can benefit from the work already completed and can share mutual support and interaction where appropriate.

The workgroup calls upon the Implementation Committee of the renewed Strategic Plan to promote the plan to U.S.-based interests in order to positively influence those U.S.-based groups that engage in international TB training and education. The workgroup also recommends that the Implementation Committee act as a liaison between domestic interests and the international organizations that focus on TB training and education.

II. TARGET AUDIENCES

The target audiences addressed by this paper are U.S.-based organizations involved in international TB education and training. In order to speak broadly about such a complex, diverse, and constantly changing group, it is useful to categorize them by type of organization. There are four general categories:

Non-government Organizations

This label applies to academic, social service, and philanthropic organizations that provide direct patient care or technical support in the international arena—often in collaboration with U.S. government agencies. In addition to establishing and supporting international TB training and education, many of these organizations have been effective in lobbying the U.S. Congress to fund international TB training and education endeavors—frequently by coordinating efforts with professional societies. Examples include PARTNERS in Health, CureTB, the Gorgas Institute, International Organization of Migration, and Project Hope. Beyond this short list are many others, including faith-based groups, schools for healthcare professionals, and research teams.

Professional Societies

This category includes groups whose membership comprises professionals working in particular medical, scientific, or public health specialties. In addition to establishing and supporting international TB training and education, many of these organizations have been effective in lobbying the U.S. Congress to fund international TB training and education—frequently by coordinating efforts with non-government organizations. A short list of such societies includes the American Thoracic Society (ATS), the Association of Public Health Laboratories (APHL), the American Society of Microbiology (ASM), the College of Pathologists (CAP), and the Infectious Disease Society of America (IDSA).

Funding Agencies and Foundations

This category includes U.S. government agencies, non-government organizations, and private foundations whose mission is to provide financial support for international healthcare programs and initiatives. The Centers for Disease Control and Prevention (CDC), the National Institute of Health (NIH), and the U.S. Agency for International Development (USAID) are the principal government agencies that provide funding for TB-related programs and initiatives, including training and education. A more detailed description of these three agencies follows below. Another important source, the Bill and Melinda Gates Foundation, has funded a number of very large projects in the field of international TB. The Soros Foundations Network and Open Society Institute is a complex network of foundations in 50 countries, centered in Eastern Europe and the former Soviet Union. One of its priorities is sustainable change in public health policy and practice. HIV/AIDS, TB, and sexually transmitted diseases are niche interests when they represent major public health problems in the target countries.

U.S. Government Agencies

This label applies to federal agencies with primary responsibilities in the areas of public health, immigration, and international affairs, as well as the U.S. Congress, which allocates funding for these agencies and their activities. A complicated set of U.S. government agencies gives international technical assistance to TB control programs, provides international TB training and education, or performs both functions. Another equally complicated set of government agencies is responsible for TB screening or treatment that occurs internationally or involves individuals who may have been exposed to TB outside the U.S. On behalf of staff or contractors, this second group is a consumer of TB training and education. All U.S.-based organizations involved in any form of TB training and education should be aware of the U.S. government agencies involved in TB. Because of the enduring importance of these agencies, a short list with brief descriptions of their current TB-related roles follows:

■ U.S. Department of Health and Human Services

Centers for Disease Control and Prevention (CDC)

CDC is the lead federal public health agency. It works with partners throughout the nation and world to monitor health, detect and investigate health problems, conduct research to enhance prevention, develop and advocate sound public health policies, implement prevention strategies, promote healthy behaviors, foster safe and healthful environments, and provide leadership and training. CDC is the sponsor of the *National Strategic Plan for TB Training and Education*. The following organizations within CDC are part of the agency's TB prevention and control endeavors:

International Liaison

CDC Division of Tuberculosis Elimination (DTBE). DTBE is responsible for domestic and international TB prevention and control activities. It conducts a strong international TB assistance program aimed at (1) high-TB-burden countries and (2) countries from which U.S. foreign-born cases originate. Two branches within DTBE are responsible for the majority of international TB education- and training-related activities: the International Research and Program Branch (IRPB), and the Communications, Education, and Behavioral Studies Branch (CEBSB). The mission of IRPB is to improve the quality of TB control programs serving internationally and among foreign-born populations in the U.S., and to provide leadership and coordination of CDC activities in countries with a high burden of TB or a strategic interest for TB control efforts in the U.S. Specifically, IRPB supports implementation and evaluation of directly observed therapy short course (DOTS) in these countries, and provides technical assistance to international TB programs. In addition, IRPB works to prevent further emergence of multidrug-resistant TB (MDR TB) and to reduce the impact of HIV on TB control programs. CEBSB's mission is to strengthen the capacity of U.S. health departments and other partners to prevent, control, and eventually eliminate TB through improved communications, information dissemination, education, training, and behavioral studies.

CDC Division of Global Migration and Quarantine Mission (DGMQ). DGMQ is charged with preventing the introduction and importation of infectious diseases into the U.S. To this end, the agency supports field stations at major U.S. ports of entry. There are an estimated 60 million international passengers arriving in the U.S. annually through approximately 295 points of entry. Since DGMQ personnel are not located at every port of entry, they train Immigration, Customs, and Agriculture Inspectors. Among their TB-related duties, field station employees must identify and manage persons, including immigrants and refugees, who enter the U.S. with a contagious infectious disease, including TB. DGMQ is also responsible for providing technical guidance and monitoring of the overseas medical screening of immigrants and refugees applying for permanent residence in the U.S., which is performed by panel physicians in countries of origin and asylum. This medical screening includes mandated evaluation for infectious diseases such as TB, Hansen's disease, HIV, and other sexually transmitted diseases. DGMQ also provides consultation, on-site response, and assistance to panel physicians, including the International Organization of Migration (IOM[2]), providing medical screening to refugees, particularly during emergent refugee resettlement movements and outbreaks of infectious diseases overseas. DGMQ is also actively involved in epidemiologic and surveillance activities aimed at identifying, controlling, and preventing diseases of public health importance among migrating populations destined for the U.S.

International Liaison

**Administration for Children and Families,
Office of Refugee Resettlement (ACF–ORR)**

ORR plans, develops, and directs implementation of comprehensive programs that provide assistance to refugees, entrants, unaccompanied alien minors, and other immigrants. Refugees are medically evaluated in the U.S. by refugee health coordinators and programs funded through the ORR, which provides financial resources to state and local refugee health programs for stateside TB screening and treatment. These programs must diagnose and treat refugees with active and latent TB infection (LTBI), as well as prioritize follow-up of individuals previously identified in overseas TB screening. ORR is also responsible for the detention of unaccompanied juveniles placed in custody during the enforcement of immigration law.

■ U.S. Department of Homeland Security**U.S. Customs and Border Protection (CBP)**

Field immigration and customs officers respond at approximately 295 U.S. ports of entry (including air and sea). Customs officers interview and process persons for legal entry into the U.S. They fill an auxiliary role by collecting medical screening paperwork from immigrants. They support CDC DGMQ by evaluating and detaining ill persons with a contagious infectious disease, including TB, and forwarding paperwork to one of DGMQ's nine field offices.

U.S. Immigration and Customs Enforcement (ICE)

ICE manages detention facilities and oversees the custody of adult illegal aliens housed in contract detention facilities and local jails under agreement with ICE. ICE is responsible for providing health services to adult detainees, treating patients with TB, and facilitating continuity of care for persons released in the U.S. or returned to their country of origin.

U.S. Citizenship and Immigration Services (CIS)

CIS approves civil surgeons to conduct screenings for individuals seeking to adjust immigration status once they are in the U.S.

■ U.S. Department of State**Consular and Embassy Services**

The target audiences of interest are embassy and consular staff (e.g., medical attachés and health officers) and the 650 panel physicians, who are local physicians appointed by the State Department to provide overseas medical screening of immigrants and refugees seeking entry into the U.S. Panel physicians diagnose infectious active TB cases (smear-positive) and other selected cases (e.g., pediatric, MDR TB), and treat these patients until noninfectious. They then identify these

individuals, as well as immigrants with suspected active TB (smear-negative), for priority follow-up in the U.S.

Bureau of Population, Refugees, and Migration (PRM)

PRM provides financial resources and guidance for overseas health screening and treatment of refugees. Panel physicians medically evaluate refugees overseas. In certain situations—for example, urgent refugee resettlement movements—organizations such as IOM[2] may be designated as panel physicians. The IOM[2] panel physicians work in collaboration with CDC DGMQ to accurately diagnosis immigrants with infectious active TB, treat these immigrants until non-infectious, and identify them for priority follow-up in the U.S.

■ **U.S. Agency for International Development (USAID)**

USAID is charged with administering U.S. foreign aid to less developed countries. Its goals are to further America's foreign policy interests in expanding democracy and free markets while improving the lives of citizens in the developing world. The agency supports TB services and research through centrally administered health-related programs, as well as through activities carried out by USAID field missions. USAID also funds the TB Coalition for Technical Assistance (TBTCA), described in Section IV, Successes and Resources.

■ **Military**

The military must provide TB diagnosis and treatment for military personnel and prisoners. Military medical personnel identify cases of LTBI and active TB, and provide appropriate treatment, conduct contact investigations, and ensure infection control in clinical and laboratory settings.

■ **Peace Corps**

There are nearly 6,700 Peace Corps volunteers currently serving in 69 countries around the world. Health volunteers (one of the Peace Corps's six categories of volunteers) work at the grass-roots level to assist local governments, clinics, non-government organizations, and communities where the need is most urgent and their impact can be the greatest. Their efforts are concentrated on outreach, awareness, and prevention programs that teach public health, hygiene, and sanitation.

■ **National Institutes of Health (NIH)**

NIH is the main U.S. government agency supporting biomedical research. It supports training efforts that include the AIDS International Training and Research Program (AITRP) and the International Training and Research Program in Emerging Infectious Diseases (ITREID). Both programs build long-term research and public health capacity through a flexible combination of

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long- and short-term training, both in the U.S. and in collaborating countries. The National Institute of Allergy and Infectious Diseases (NIAID) and National Heart, Lung, and Blood Institute (NHLBI) are major funding sources for TB projects.

■ U.S. Congress

The Congress introduces legislation and allocates funding for domestic and international TB control efforts. It is influenced by voter constituents in the respective states, as well as by lobbying interest groups.

III. DEFINING THE ISSUE

The global nature of the TB epidemic requires that the disease be viewed in an international context. The constant movement of people around the world ensures that TB does not respect borders. As the Institute of Medicine (IOM) emphasized in its report *Ending Neglect: The Elimination of Tuberculosis in the United States*, published in 2000: “Unless TB is eliminated everywhere, it won't be eliminated anywhere.”¹ The IOM report recommends that the U.S. “expand and strengthen its role in global TB control efforts.”

In 1993 the World Health Organization (WHO) declared TB to be a global health emergency. According to WHO, in 2003, one-third of the world's population was infected with the tuberculosis bacillus, with 7 to 8 million people developing the disease each year. In the countries that have been hardest hit, case rates exceed 500 per 100,000 population. TB accounts for more than one-quarter of all preventable adult deaths in developing countries, despite the existence of the DOTS strategy, which could potentially cure all cases. It is estimated that between now and 2020, nearly one billion more people will be newly infected with TB, 200 million people will get sick, and 70 million will die from the disease, if control is not strengthened.

Many countries lack the public health infrastructure necessary to address TB adequately. Several additional factors complicate progress toward TB control. The HIV epidemic has contributed substantially to the resurgence of TB, because HIV-associated immunodeficiency renders persons at extraordinary risk of rapid progression from latent to active TB. Moreover, rates of MDR TB are elevated in several so-called “hot spot” nations, particularly countries that were part of the former Soviet Union. In some areas, one of every six new infectious cases of TB has MDR TB. Because of the expensive drugs and extended treatment these persons need, MDR TB has contributed to the increasing burden of TB and the inability of many resource-poor countries to combat their respective epidemics. In 2000, WHO estimated that 80 percent of the global TB burden occurred in

22 “high-burden” countries. These countries are the highest priority for the focus and coordination of global TB control efforts.

There are numerous compelling reasons for U.S.-based organizations to be involved in global TB control. One is the remarkable contribution of global TB to the U.S. burden. In 1986, foreign-born individuals accounted for 22 percent of all TB cases in the U.S. By 2002, the proportion of foreign-born cases had increased to over 50 percent. The U.S. will never be able to eliminate TB until the global epidemic is under control; on the other hand, improvement in the control of global TB equates to better TB control in the U.S. In addition, with the present worldwide situation at crisis point, we believe we have an obligation as responsible global citizens to help in the international fight against TB.

The IOM report, *Ending Neglect*, specifically calls for the support of TB control training in countries with high rates of disease. In its answering report, *Response to Ending Neglect*,² CDC outlines several ways in which the U.S. could increase involvement in international TB control activities. With regard to education and training, the CDC *Response* calls for U.S. efforts to:

- Increase the pool of skilled persons who can provide technical assistance to TB control programs
- Support the educational programs of the International Union Against Tuberculosis and Lung Disease (IUATLD)
- Contribute technical support and capacity-building assistance to strengthen epidemiologically based DOTS implementation
- Provide training in program management, epidemiologic methods, and operations research to implement DOTS, as well as to address the problems of MDR TB and HIV-TB co-infection

The training of TB program staff, from national program managers to outreach workers, is a key strategy for improving TB prevention and control. The impact of TB can be lessened by building public health infrastructure and teaching health personnel about the disease and its control strategies. When the local capacity to respond to the TB epidemic is increased through directed training, the dependence on external assistance for resources can be reduced, and the training of trainers can ensure that the capacity-building skills will be sustained.

IV. SUCCESSES AND RESOURCES

A variety of U.S.-based organizations have already recognized the need to address global TB and have become involved in international TB training and education activities, such as providing

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technical assistance or building the TB control capacities of national TB programs in individual countries. Coordination and collaboration among U.S.-based organizations involved in international TB education and training activities can result in a more efficient use of resources and a potentially greater impact on global TB control. Similarly, coalitions between U.S.-based and international organizations are crucial to advancing their mutual objectives.

This section catalogues U.S.-based and international organizations that are active in this arena and can be counted as resources. U.S.-based agencies are encouraged to access both national and international resources as they consider and complete work in the international arena.

■ World Health Organization (WHO)

WHO, headquartered in Geneva, is the United Nation's specialized health agency. With 192 member states, WHO has a presence in virtually all developing countries and is responsible for defining the international health policy for TB control. It provides technical assistance and advice to countries on policy formulation; on project planning and implementation, including human resource development; and on the monitoring and evaluation of TB control activities. WHO maintains global surveillance and monitoring of TB incidence, drug resistance, and the status of control programs. WHO also develops generic training materials and guidelines for human resource development.

■ International Union Against Tuberculosis and Lung Disease (IUATLD)

A non-government organization headquartered in Paris, IUATLD comprises constituent, organizational, and individual members. There are IUATLD regional organizations in North America, Latin America, Europe, Africa, Asia, and the Middle East. IUATLD disseminates information on TB and lung disease, coordinates and assists the work of its members throughout the world, and maintains close links with WHO, as well as with other United Nations agencies, and government and non-government organizations in the health and development sector. IUATLD focuses its expertise and activities on technical assistance, education, and research, and organizes numerous international training courses on various aspects of TB control. IUATLD sponsors the World Conference on Lung Health. There are regional conferences as well. For example, the North American Region (NAR) supports the NAR-IUATLD International Conference, which provides a regular forum to promote cross-border awareness of TB.

■ Royal Netherlands Tuberculosis Association (KNCV)

KNCV, based in The Hague, was established in 1903 as a unique public-private partnership. The organization promotes effective and efficient TB control, including human resource development within a national and international context, and acts as an implementing agency for projects financed by the Dutch government and other Dutch international foundations. Since the 1980s,

KNCV has contributed to the development and implementation of effective TB control programs in low-income countries. It also hosts the International Tuberculosis Surveillance Centre (ITSC) and the Tuberculosis Surveillance Research Unit (TSRU); contributes to international policy development, especially within its collaboration with WHO and the IUATLD; and collaborates with numerous international organizations. KNCV has a highly qualified staff with expertise in a wide variety of fields; many staff members have long experience working and living in developing countries.

■ **Tuberculosis Coalition for Technical Assistance (TBCTA)**

As part of the global effort to control TB, six organizations (World Health Organization, Royal Netherlands Tuberculosis Association, International Union Against Tuberculosis and Lung Disease, CDC, the American Lung Association, and the American Thoracic Society), with support from USAID, have formed a unique free-standing partnership—the TBCTA. Each of the partner organizations has a TB-specific agenda, as well as TB-specific expertise and experience.

TBCTA has a twofold purpose. First, it aims to substantially improve and expand the capacity of USAID and national health programs to respond to the global TB epidemic. To this end, it provides state-of-the-art, context-appropriate, technically sound, and cost-effective consultation and technical assistance to high-incidence countries and USAID missions. TBCTA's second purpose is to complement and enlarge upon existing global TB control efforts, such as the Stop TB Initiative, WHO programs, and the activities of individual TBCTA partners. The ultimate goal is to reduce the global burden of TB and its attendant mortality, thus significantly improving human health, well-being, and development, particularly among the poor.

TBCTA provides strategic direction and leadership, as well as technical expertise and assistance on program and project development, program assessments, and training workshops. The coalition also supports and facilitates consensus-building meetings and intra- and inter-country meetings. TBCTA has a Task Force on Training, which supports the efforts of national TB programs, academic institutions, and medical institutions to strengthen human resource development and expand the global use of DOTS.

■ **Collaborative for Training and Education for TB Control in Russia, the Baltic States, and NIS**

Through a collaborative effort between the WHO Headquarters (HQ), the WHO Regional Office for Europe (WHO EURO, located in Copenhagen), and numerous partners, the Collaborative for Training and Education for TB Control in Russia, the Baltic States, and NIS was established in 2000. The mission of the group is to promote and assist training and education efforts towards the control of TB. Members of the group are organizations and institutes involved in TB training

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activities in the region. The Collaborative's members currently come from WHO HQ, WHO EURO, CDC, KNCV, TBCTA, Mediciens Sans Frontieres Holland, Partners in Health, New Jersey Medical School National Tuberculosis Center, Open Health Institute, WHO Collaborative Centre Tradate Italy, Project Hope, International Federation of Red Cross and Red Crescent Societies, USAID, U.S. Department of Health and Human Services, Management Sciences for Health, and the Swedish Institute for Infectious Disease Control.

■ Centers for Disease Control and Prevention**Communications, Education, and Behavioral Studies Branch (CDC-CEBSB)**

CEBSB is a branch of the CDC Department of Tuberculosis Elimination, which was previously described in more detail in Section II, Target Audiences, under U.S. Government Agencies. CEBSB has established the international TB-Educate Listserv, the TB Education and Training Network, and the CDC's *Tuberculosis Education and Training Resource Website*. (For more information on these resources, refer to Attachment C.) CEBSB has also developed training and education materials for healthcare workers in international settings, such as the Baltics, Russia, India, Mexico, Peru, Botswana, Thailand, Ethiopia, and El Salvador.

V. NEEDS AND BARRIERS

U.S.-based organizations involved in international TB training and education have unique needs, as well as unique barriers, that must be addressed if those needs are to be met. However, many of the needs are common to organizations that have similar functions with regard to TB. For discussion of mutual needs and barriers, it is convenient to divide these organizations by function: providers or consumers of TB training and education. A few organizations perform both functions, but it is still useful to categorize the needs for each role. In the section below, a description of each of the functional categories is followed by a discussion of common needs and barriers.

Providers

These are U.S.-based organizations that deliver TB training, education, or technical assistance at the international level, to audiences beyond their own organizational structure. These organizations provide this training as part of a larger goal of strengthening local TB control in other countries, and they are not generally responsible for the staff that implements TB control programs. These organizations contribute to global TB control efforts in numerous ways: by participating in international coalitions and partnerships; by working with TB programs and ministries of health in countries with a high TB burden to develop capacity and implement public health programs; by providing patient and community education, advocacy, and direct assistance and support. Although

many of these agencies have functions beyond TB, this Strategic Plan addresses them as providers of TB training and education. For these groups, the needs and the associated barriers revolve around issues of infrastructure, resources, and coordination for TB training and education:

- Better coordination is needed with other U.S.-based organizations and with organizations based outside the U.S. All agencies involved in the delivery of TB training and education need to know what organizations are working in the locale (or have been there recently) in order to collaborate or build on recent interventions. Coordination is not just an issue of who has been where; it is also an issue of what methods different groups have tried and which have been most productive. Barriers include inadequate communication between the relevant government agencies and the large number of other organizations that, at various times, might be involved in the effort.
- Additional resources are needed for making TB training and education interventions long-term and self-sustaining. Barriers include the concern of many funders that TB is not central to their mission, as well as the poor understanding of other funders about the value added by TB training and education.
- Means are needed for locating and accessing qualified consultants. A range of consultant experts is required, with knowledge and experience in such areas as surveillance, diagnosis, treatment, education and training (capacity building), health promotion, and administration. Barriers include a lack of agreement about what constitutes “qualified” in any of the various fields of expertise, and the difficulty of maintaining any central data set of skills and contact information.
- Proven strategies are needed for addressing special areas of interest, such as TB-HIV co-infection and drug resistant TB. Barriers include the lack of resources and strategies with demonstrated success.
- Additional resources are needed for the production and distribution of training materials for providers and educational materials for patients. The materials must be linguistically and culturally appropriate, and patient-focused materials should be accessible to persons with low literacy. Barriers include the cost of creating, translating, printing, and distributing materials, as well as the additional cost of keeping such materials up-to-date and readily available.
- Better coordination is needed for sharing materials that have already been developed. Barriers include the lack of coordination among agencies that produce materials, and the lack of a well-known central source that agencies can check for the availability of existing materials before creating new ones.

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- Better coordination is needed for keeping the issue of international TB present in the minds of U.S.-based organizations and individuals. Barriers include the difficulty of consistently reaching the large numbers of individuals and organizations that ideally should be engaged in the issue.

Consumers

These are U.S.-based organizations responsible for TB screening or treatment that occurs internationally or involves individuals who may have been exposed to TB outside the U.S. This category includes agencies and organizations whose personnel or contractors provide direct care to persons who reside outside the U.S., or to persons entering, re-entering, or transiting through the U.S., such as immigrants, refugees, military personnel, detainees, and others. Beyond the borders of the U.S., a number of U.S.-based agencies have provided direct care to persons expected to remain outside the U.S., such as local populations in areas receiving international attention. In such instances, the U.S.-based organization delivers clinical or other services, including health screening and monitoring of mobile populations. Whether based in the U.S. or outside the country, staff and contractors of these agencies might be charged with providing direct care to persons with TB or overseeing appropriate referrals. Although all of these agencies have functions beyond TB control, this Strategic Plan addresses them as consumers of TB training and education.

Clearly, these agencies need to see success achieved by agencies in the previous category; namely, those that promote or provide TB training and education as part of a larger goal of strengthening local TB control in other countries. The workload of U.S.-based agencies with responsibilities related to TB screening, diagnosis, or treatment for foreign persons or persons exposed to TB in foreign countries will decrease as the effectiveness of TB control programs in other countries improves. Therefore, agencies with such responsibilities should support agencies that are performing vital training, education, capacity-expansion, and advocacy roles.

In more immediate terms, organizations in the consumer category have a number of needs that must be met if they are to carry out their direct-care role successfully. These needs and their associated barriers include the following issues and concerns:

- Ongoing training is needed for field staff on the identification, treatment, referral, and follow-up of suspect TB cases and cases diagnosed with LTBI or active disease. Barriers include a number of elements that complicate the effective provision of such training. Staff duties vary, and some staff may have competing responsibilities (e.g. immigration enforcement). This necessitates tailored education that depends on the individual's likely involvement in TB screening or treatment. Staff turnover might be high, requiring additional resources for repeated delivery of TB training. Staff based in foreign countries might not be

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fluent in English or share a primary language, requiring the delivery of training and education in multiple languages. Clinical staff based in other countries might have received TB-related training (on treatment, Bacille Calmette-Guerin [BCG] vaccination, or other topics) that is not consistent with U.S.-based TB treatment standards.

- Ongoing coordination is needed with local health departments, correctional facilities, and others for effective management of immigrants, refugees, detainees, and returning U.S. citizens requiring TB-related services. Barriers include the large number of state and local TB programs and other potentially collaborating organizations—and the sometimes episodic nature of their contact with the national agencies. Also problematic are the varied needs, requirements, and regulations that govern the multiple national agencies involved in TB treatment and surveillance.
- A reliable means is needed for informing immigrants and refugees about local sources of treatment and treatment options once they are in the U.S. Barriers include the need for interpretation and translated materials, as well as the lack of a centralized means of referral to local programs. Delivery of materials in the country of origin would be desirable, but can be a logistic challenge despite the advances of the Internet.
- Better coordination is needed between local TB programs in foreign countries and U.S.-based organizations working in those countries, or working to return foreign nationals to those countries. Barriers include the number of countries potentially involved and the poor development of TB control in some of them.

VI. STRATEGIC OBJECTIVES

The strategic objectives below are suggested as specific steps that can be taken toward the accomplishment of the five broad goals that have been defined for the *National Strategic Plan for TB Training and Education*. Considering the overarching aims of the Strategic Plan and the current state of international TB training and education efforts, the International Liaison workgroup has selected the following objectives as reasonable and feasible priorities for the next five years. They provide a means of beginning to address the issues identified in Section V, Needs and Barriers.

By intention, the strategic objectives do not specify who will do what. Instead, they describe a desired outcome and identify the types of organizations that would need to be engaged if the strategic objective is to be achieved. The workgroup charges the Implementation Committee of the Strategic Plan to secure commitment and action from the necessary agencies during the coming five years.

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Strategic Objective 1

Desired Outcome: A mechanism for collaboration and ongoing communication among all agencies involved in international TB training and education

Strategies:

An international or national TB agency should organize appropriate mechanisms (listserv or other means).

International and national TB agencies should promote use of such mechanisms to agencies already involved, or likely to become involved, in international TB training and education.

U.S.-based agencies involved in international TB training and education should use such mechanisms to coordinate their efforts with those of others—especially agencies currently working in the same locale.

Strategic Objective 2

Desired Outcome: A mechanism to identify and access qualified cadres of consultants who can provide overall TB expertise, as well as specialty information (pediatric treatment, laboratory technique, health promotion, epidemiology, human resources development, etc.)

Strategies:

International or national TB agencies should work with professional societies to develop standards for designation as a qualified TB consultant.

An international or national TB agency should develop mechanisms (databases, etc.) to allow U.S.-based organizations to locate and contact listed consultants.

National TB agencies should promote the use of the individuals on these lists to U.S.-based agencies involved in international TB training and education.

Strategic Objective 3

Desired Outcome: Support for an expanded international network for TB training and education professionals

Strategies:

Funders should maintain and expand the TB Education and Training Network (TB ETN), an existing network for individuals engaged in TB training and education.

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International and national TB programs, as well as U.S.-based agencies involved in international TB training and education, should promote participation in TB ETN by their appropriate staff.

Strategic Objective 4

Desired Outcome: Support for a central database of TB training and education resources

Strategies:

Funders should maintain and expand the CDC's *TB Education and Training Resource Website* (see Appendix C) as an up-to-date searchable database and a printed reference.

International and national TB agencies, and other relevant organizations that produce or use TB-related materials, should refer regularly to the *TB Education and Training Resource Website* to identify available resources and prevent unnecessary duplication. Similarly, they should contribute to this website by providing the organization that maintains it with details about any materials and resources they develop.

Strategic Objective 5

Desired Outcome: Awareness of the global scope of TB and the ongoing need for international TB training and education

Strategy:

Professional societies should continue to include TB programming at meetings and conferences.

Strategic Objective 6

Desired Outcome: Development, adoption, and promotion of TB core competency recommendations for clinical and non-clinical staff and contractors of U.S.-based agencies involved in international TB whose responsibilities include direct care to foreign persons with TB or to persons exposed to TB in foreign countries, and ongoing delivery of TB training and education to this audience

Strategies:

National TB training agencies should work with U.S.-based agencies involved in international TB to develop, adopt, and promote TB core competencies for their personnel or contractors.

National TB training and education agencies should develop training courses, activities, and materials keyed to the core competency recommendations.

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U.S.-based agencies involved in international TB should make opportunities for staff and contractors to receive appropriate training and education.

Strategic Objective 7

Desired Outcome: Coordination between state and local TB programs and U.S.-based agencies involved in international TB with regard to movement (such as immigration, deportation, or re-entry) of foreign persons with TB and persons exposed to TB in foreign countries. Examples of such agencies include U.S. Customs and Border Protection and U.S. Marshals.

Strategy:

National TB training agencies should work with U.S.-based agencies to develop and disseminate coordination strategies to state and local TB programs.

VII. CLOSING STATEMENT

TB is a global problem, and addressing the issues that surround this disease requires cooperation and coordination of effort on the part of national and international agencies with responsibilities for or interests in TB control. These agencies play a variety of roles: formulating policy, promoting or providing TB training and education, or providing direct care to TB patients or persons at risk for the disease.

A large and diverse variety of U.S.-based organizations—non-government organizations, professional societies, funding agencies and foundations, and federal government agencies—are involved in international TB education, training activities, and technical assistance. The workgroup encourages the adoption and implementation of strategies that will foster collaboration among these organizations, as well as coalitions between U.S.-based and foreign organizations. These strategies will enhance training capacity and lead to a more efficient use of resources—which, in turn, should lead to a greater impact on global TB control.

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STRATEGIC PLAN • ATTACHMENT A

STRATEGIC PLANNING PROCESS

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STRATEGIC PLAN • ATTACHMENT B

2003 NATIONAL TUBERCULOSIS TRAINING AND EDUCATION SURVEY

Summary Report

I. INTRODUCTION

In 2003, the Centers for Disease Control and Prevention (CDC) sponsored a collaborative effort to gather tuberculosis (TB) experts to forecast future TB training needs and trends. The three National Model Centers—the Francis J. Curry National Tuberculosis Center (CNTC), the New Jersey Medical School National Tuberculosis Center (NJMSNTC), and the Charles P. Felton National Tuberculosis Center at Harlem Hospital (FNTC)—are coordinating the process in conjunction with the CDC Division of Tuberculosis Elimination (CDC-DTBE). The CDC made funds available for a secretariat to provide administrative and logistic support throughout the process.

The Model Centers and the CDC-DTBE completed a similar planning effort in 1998. For five years, the published Strategic Plan has provided guidance to agencies and organizations in the United States that supply TB training and education (TB T&E) for public and private sector providers. In 2004, at the end of the current planning cycle, a new document, the *National Strategic Plan for Tuberculosis Training and Education 2004–2008*, will establish priorities allowing those agencies and organizations to target training resources for the next five years more effectively.

In 1998, membership of the National Tuberculosis Controllers Association (NTCA), and the National Tuberculosis Nurse Consultants Coalition (NTNCC) were surveyed as part of the planning process for the first Strategic Plan. In 2001, the three Model Centers sponsored a second TB T&E survey, identifying TB centers (state and big-city) across the country, as well as NTCA members, as respondents.

As part of the 2003 strategic planning process, CNTC conducted another survey on TB T&E, fielded as a brief, web-based questionnaire. The survey's objectives were to present an overview of the national state of TB T&E and provide data comparable to the earlier surveys when possible. For the 2003 effort, some questions were drawn from the 1998 survey and some categorizations adapted from the 2001 survey. Methods and results of the 2003 National TB Training and Education Survey are discussed below.

II. METHODS

CNTC staff and consultants, under the advisement of the Steering Committee of the current planning cycle for the *National Strategic Plan for TB Training and Education*, developed a national survey on TB T&E issues. The request for participation was disseminated via e-mail and the questionnaire was completed on-line. Fax versions of the survey were offered to individuals without Web access.

In February 2003, e-mail requests for confidential participation were distributed to three groups:

- Members of the National Tuberculosis Controllers Association (NTCA) and the National Tuberculosis Nurse Consultants Coalition (NTNCC)
- Individuals registered with the TB-Educate Listserv
- Members of the TB Education and Training Network (TB ETN)

The first group, members of the NTCA and NTNCC, are key stakeholders in all TB-related efforts. They are knowledgeable about TB training needs, as well as trends in TB control and prevention. This group is frequently used as a set of key informants on diverse issues involving TB. For the purposes of this report, it is important to mention that members of this group are often directly responsible for the delivery of TB T&E to a diverse set of audiences. The second group is a self-selected set of individuals with sufficient current interest in TB T&E to maintain contact with other involved professionals. In many cases, these individuals do not hold positions dedicated to TB. They do, however, regularly deliver TB T&E to a diverse set of audiences.

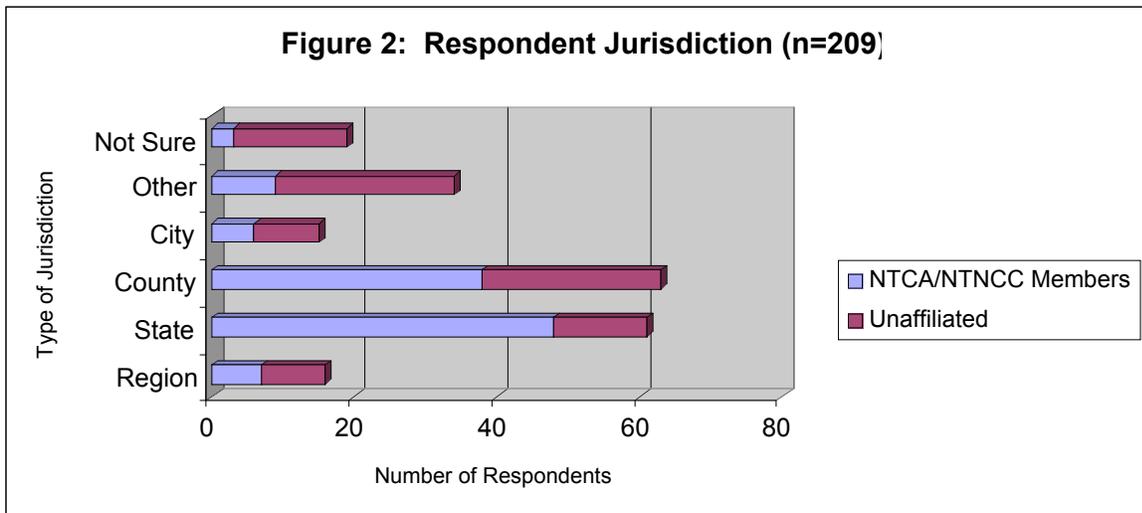
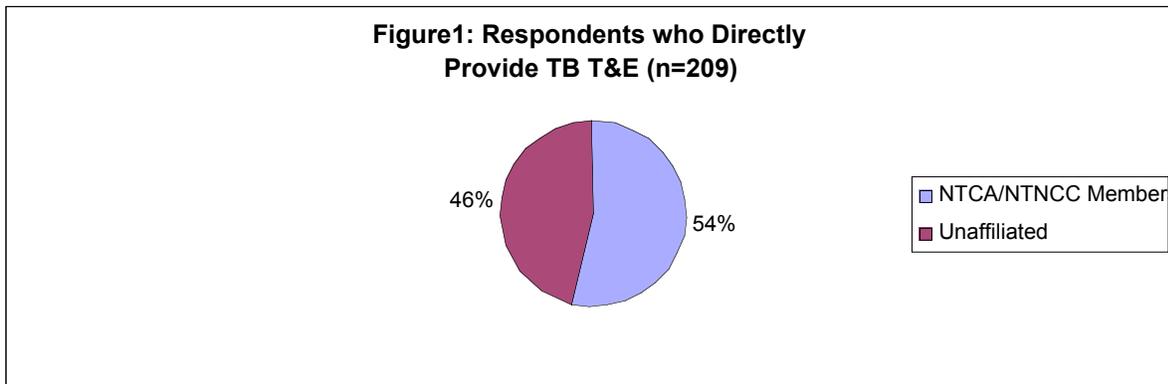
Over the course of two months, survey responses were received from 209 individuals who identified themselves as directly responsible for provision or arrangement of staff training and education.

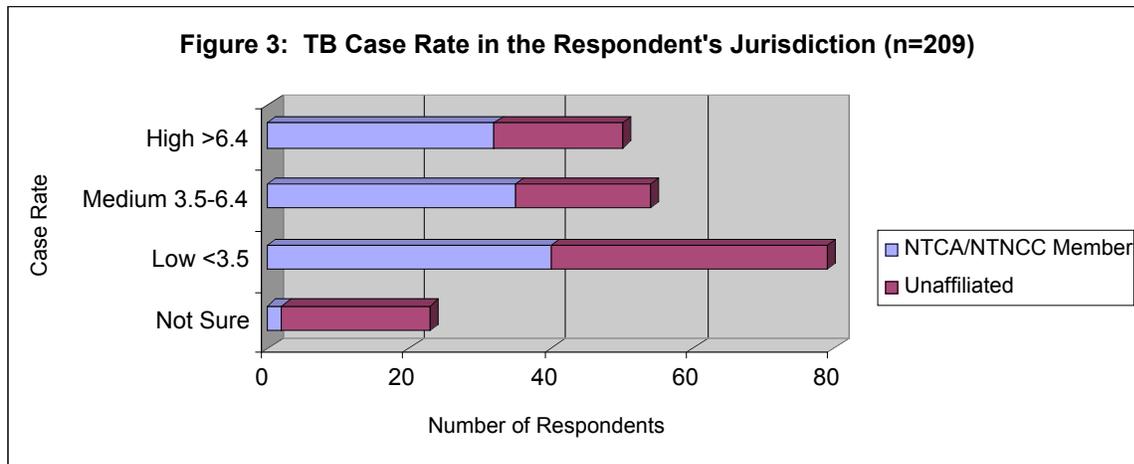
Because of the nature of the sampling—an e-mail request, broadly distributed and requesting further distribution from each respondent—it is not possible to calculate exact response rates for the TB ETN group. However, a subgroup rate for the NTCA/NTNCC members *can* be calculated. From a total of 300 requests sent to NTCA/NTNCC members, responses were received from 112 people, a response rate of 37%. The total sample, however, is essentially one of convenience.

III. RESULTS

Profile of Respondents

The 209 respondents identified themselves as directly responsible for provision or arrangement of staff training and education. A slight majority of these respondents (54%) identified themselves as NTCA/NTNCC members (Figure 1). More respondents reported affiliation with the TB ETN’s Educate Listserv (59%) than reported membership in TB ETN (42%). Responses were received from 50 states, provinces, or U.S. protectorates. Responses represent a broad mix of jurisdictions (Figure 2) and were not overwhelmingly from areas of either high or low TB incidence (Figure 3). Of respondents unaffiliated with NTCA/NTNCC, a minority (35%) identified their work as “TB-dedicated.”





Profile of TB-Related Trainings

Using the methodology established in the 1998 questionnaire, the 209 respondents to the 2003 survey who indicated direct responsibility for staff training and education were asked to profile recent trainings or events through a series of standardized questions. Responses were provided describing 418 staff trainings or events. While not an exhaustive description of TB T&E currently available, the combined information suggests a profile of the national state of TB T&E as it is currently being provided to staff. The responses give an indication of which formats are frequently utilized (Table 1); what resources are regularly accessed (Table 2); which types of staff are frequently involved (Table 3); what topics are frequently covered (Table 4); and whether continuing education credits are regularly provided (Table 5).

A note on comparability: Data from 1998 are provided where comparable. Data from 2001 are not presented because the categorizations borrowed from that survey were used in substantially different ways. Future iterations of the TB T&E surveys, if standardized, could yield more directly comparable numbers.

FORMATS

In 1998 and in 2003, respondents were asked to list all formats used in the two most recent trainings the respondent had arranged or provided (see Table 1). In 2003, traditional classroom-style lecture was reported as the overwhelmingly common format, present in 69% of the profiled trainings or events. Print materials were reported to be almost as common, with strong use of videotape. Differences between 1998 and 2003 numbers suggest growth in the use of videotape and computer-based instruction, as well as a decline in the use of conferences.

Table 1: Format(s) Utilized in the TB Trainings or Events Profiled by Respondents	1998 (n=114)	2003 (n=418)
	%	%
Clinical Practicum	–	23
Classroom Style Lecture	55	69
Conference	48	24
Interactive Satellite Broadcast	15	6
Print Materials	51	52
Videotape	17	31
Satellite Broadcast	–	2
Audiotape	–	2
Computer-Based Instruction	1	–
CD-ROM	–	6
Web-Based Instruction	–	3

– Data is not available.

n = number of TB trainings or events profiled by respondents

RESOURCES

In 1998 and in 2003, respondents were asked to cite all resources used in the two most recent trainings the respondent had provided or arranged (see Table 2). In 2003, the most frequently cited resources were state health departments, the Model Centers, and the CDC–DTBE. Differences between 1998 and 2003 suggest dramatic growth in use of the Model Centers as a resource for TB T&E and some decline in the use of state health departments.

When offered the chance to specify “other” TB training and education resources, respondents cited a variety of possibilities including: a state council on TB; state departments of correction; a sub-state regional TB group; AIDS Education and Training Centers; local schools of public health; the World Health Organization (WHO); the International Union Against Tuberculosis and Lung Disease (IUALTD); and the A.G. Holley State TB Hospital in Florida. Local experts and staff from other programs were cited as key resources, and several respondents mentioned the use of local minority councils for cultural competency programs. Respondents also

mentioned their own independently developed materials and the adaptability of sexually transmitted diseases (STD) training modules to teach contact investigation in TB. Finally, several respondents specified the TB ETN TB-Educate Listserv as a frequently used resource.

Table 2: Resource(s) Utilized in the TB Trainings or Events Profiled by Respondents	1998 (n=114)	2003 (n=418)
	%	%
Local Health Department	33	34
State Health Department	61	50
Other Health Department	–	5
National Jewish Hospital	11	8
CDC–DTBE	51	55
CDC–Other	4	9
National Model TB Center (any)	26	53
ALA	–	16
Other	–	13

– Data is not available.

n = number of TB trainings or events profiled by respondents

TYPES OF STAFF

Respondents were asked to cite all categories of staff members involved in their two most recent trainings (see Table 3). The most frequently cited staff members to receive training and education were: TB program nurses, public health nurses, and nurses from other programs. In combination, these reports indicate that more than half of the profiled trainings or events involved nurses as participants.

Table 3: Type(s) of Staff Trained in the TB Trainings or Events Profiled by Respondents	2003 (n=418)
	%
TB PROGRAM STAFF	
TB Program Controllers	7
TB Program Managers	18
TB Program Staff/Disease Investigators	30
TB PROGRAM CLINICIANS	
TB Program Physicians	12
TB Program Nurses	33
OTHER PUBLIC HEALTH STAFF	
Laboratory Staff	6
Local Health Officers	5
Public Health Nurses	34
Civil Surgeons	0
OTHER MEDICAL PROVIDERS	
Physicians	23
Nurses	48
OTHER FACILITY/PROGRAM STAFF	
Corrections	17
Alcohol & Drug Treatment	7
HIV/STD	8
Homeless	8
Hospitals	18
Nursing Homes	16
Schools	6
Managed Care Organizations	4

n = number of TB trainings or events profiled by respondents

TOPICS

Respondents were asked to cite all topics covered in the two most recent trainings the respondent had provided or arranged (see Table 4). The most frequently cited topics were: PPD skin testing, infection control, TB basics for clinicians, and latent TB infection for clinicians. Frequency of a topic among the profiled trainings and events indicates the relative volume of time and energy devoted to the topic. It does not indicate priority over other topics. Instead, it probably reflects the interests and needs of large segments of the audience being trained. The frequency of these four topics is most likely related to the large percentage of trainings or events that involve nurses as audience members (see Table 3).

Table 4: Topics Covered in the TB Trainings or Events Profiled by Respondents	2003 (n=418)
	%
PPD Skin Testing	56
Infection Control	43
Latent TB Infection for Clinicians	39
TB Basics for Clinicians	38
TB Surveillance	33
TB Contact Investigation	33
Special Populations (HIV+, homeless, substance users, foreign born)	33
TB Basics for Non-Clinicians	29
TB Case Management	29
Legal Issues and TB Control	20
TB Interviewing	17
TB in Correctional Facilities	16
TB Laboratory Methods	16
Cultural Competency	14
TB in Other Programs or Facilities	13
Pediatric TB for Clinicians	9

n = number of TB trainings or events profiled by respondents

CREDITS

Respondents were asked to cite all types of educational credits available in the two most recent trainings the respondent had provided or arranged (see Table 5). Continuing education units (CEUs) were the most frequently cited credits. As with frequency of topic, frequency for an educational credit reflects the interests and needs of large segments of the audience being trained. CEU frequency is probably related to the large percentage of trainings or events that involve nurses as audience members (see Table 3). When offered the chance to specify “other” credits, respondents frequently indicated attendance certificates for compliance with employer mandates. One respondent identified skin-testing certificates.

Table 5: Educational Credits Offered in the TB Trainings or Events Profiled by Respondents	2003 (n=418)
	%
CEU	19
CME	13
Other	11
CNE	10

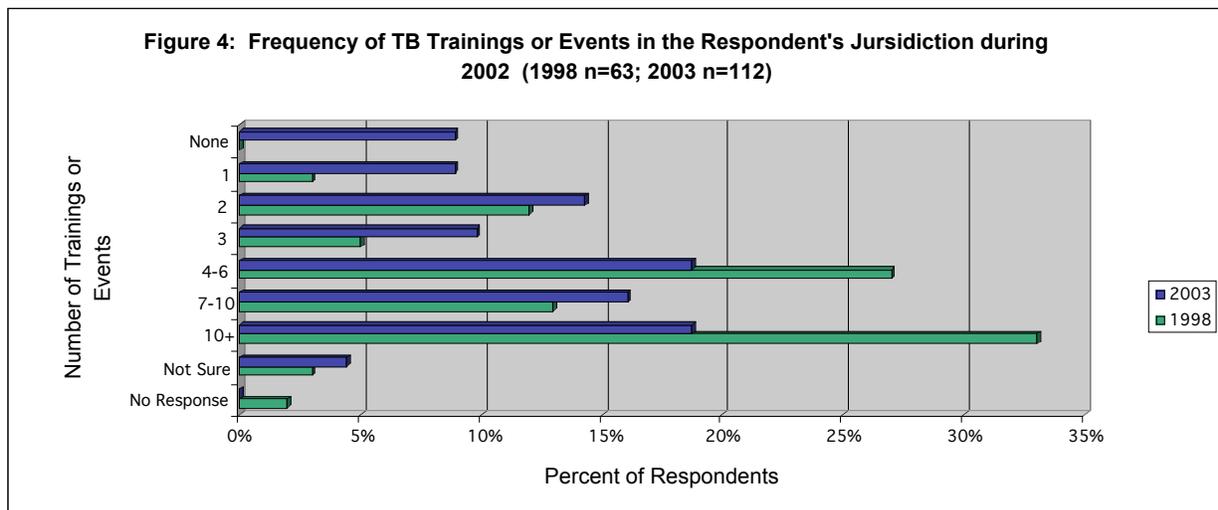
n = number of TB trainings or events profiled by respondents

Profile of Key Informant Perception

There were 112 members of NTCA/NTNCC with direct responsibility for TB training and education who responded to the survey. Members of the NTCA and NTNCC are knowledgeable about TB training needs, as well as trends in TB control and prevention. Because direct measurement was not feasible for many important topics, these key informants were asked to share their expert opinions on the frequency of TB trainings and events in their jurisdictions (Figure 4); penetration of TB training and education in select audiences (Table 6); availability of core topics for select audiences (Table 7); frequency of select formats with select audiences (Table 8); and awareness and use of the original Strategic Plan (Tables 9A and 9B).

FREQUENCY OF TRAINING

In 1998 and in 2003, respondents were asked to estimate the number of TB training courses or events for staff that were provided in their jurisdiction during the previous calendar year (see Figure 4). The measure is subjective, but differences between the 1998 and 2003 numbers suggest that there might have been a decline in the annual number of trainings or events provided below the national level (i.e., trainings provided at the local, regional, or state level). The change may not reflect a decrease in overall education for staff, since self-study materials and other distance learning devices, such as web-based courses, have become more common and more accessible in the intervening years.



PENETRATION

Respondents were asked to categorize current penetration of TB T&E (see Table 6). Their responses are a complex answer to a complex question. The table below indicates the percent of expert opinion that believes the listed audience has received a “reasonable amount” of TB T&E. Their positive responses indicate staff audiences where TB T&E has become or is becoming standard. A majority of respondents cited four audiences as having achieved TB T&E penetration of half or more: TB program controllers, TB program managers, TB program staff/disease investigators, and TB program nurses.

Table 6: Penetration of TB Training and Education in Select Audiences	
Audience	Percent of respondents reporting that half or more of the audience receives a reasonable amount* of TB Training and Education (n=112)
TB PROGRAM STAFF	%
TB Program Controllers	67
TB Program Managers	67
TB Program Staff/Disease Investigators	64
TB PROGRAM CLINICIANS	
TB Program Physicians	44
TB Program Nurses	65
OTHER PUBLIC HEALTH STAFF	
Laboratory Staff	33
Local Health Officers	–
Public Health Nurses	27
Civil Surgeons	–
OTHER MEDICAL PROVIDERS	
Physicians	–
Nurses	–
OTHER FACILITY/PROGRAM STAFF	
Corrections	–
Alcohol & Drug Treatment	–
HIV/STD	–
Homeless	–
Hospitals	–
Nursing Homes	–
Schools	–
Managed Care Organizations	–

* Respondents were asked to make independent judgments about “reasonable amount” because of a lack of current consensus on the subject for the listed audiences.

– Less than 25% of respondents indicated that the audience received sufficient TB T&E.

n = number of respondents

AVAILABILITY

Respondents were asked to report perceived availability or unavailability for a number of core TB topics for a variety of audiences (see Table 7). Their responses are a complex answer to a complex question. The table below indicates the percent of expert opinion that believes the listed topic is not “sufficiently available” for the listed audience. Their responses suggest general satisfaction: in no case did a majority of respondents cite a topic as unavailable. However, substantial minorities expressed concern about the availability of cultural competency for all audiences and about the availability of a number of clinical topics for medical providers outside TB programs.

Table 7: Availability of Core Topics for Select Audiences					
	TB Program Staff	TB Program Clinicians	Other Public Health Staff	Other Medical Providers	Other Facility/Program Staff
Topic	Percent of respondents reporting the topic NOT sufficiently* available for the audience (n=112).				
TB Basics for Clinicians (transmission, pathogenesis, diagnosis, treatment, prevention)	–	–	–	30	–
Pediatric TB for Clinicians	–	–	–	29	–
Latent TB Infection for Clinicians	–	–	–	25	–
PPD Skin Testing	–	–	–	26	–
Infection Control	–	–	–	–	–
TB Laboratory Methods	–	–	–	29	–
TB Surveillance	–	–	–	–	–
TB Basics for Non-Clinicians	–	–	–	–	–
TB Case Management	–	–	–	–	–
TB Contact Investigation	–	–	–	–	–
TB Interviewing Special Populations (HIV+, homeless, substance users, foreign born)	–	–	–	–	–
Legal Issues and TB Control	26	–	29	33	–
TB in Correctional Facilities	–	–	–	–	–
TB in Other Programs or Facilities	–	–	–	–	–
Cultural Competency	42	36	43	40	34

* Respondents were asked to make independent judgments about “sufficiency” because of a lack of current consensus on the subject for the listed audiences.

– Less than 25% of respondents indicated that the topic is not sufficiently available for this audience.

n = number of respondents

FREQUENCY OF FORMAT

Respondents were asked to report successful use of a number of training and education formats with a variety of audiences (see Table 8). Their responses are a complex answer to a complex question. The table above indicates the percent of expert opinion reporting successful use of the format with the listed audience. Their responses suggest common current and near-future use of certain formats for certain audiences. A majority of respondents cited three successful combinations of format and audience: classroom-style lectures for TB program staff; print materials for TB program staff; and print materials for other medical providers. Substantial minorities reported a number of other successful combinations.

Table 8: Frequency of Format with Select Target Audiences					
	TB Program Staff	TB Program Clinicians	Other Public Health Staff	Other Medical Providers	Other Facility/Program Staff
FORMAT	Percent of respondents reporting successful use of the format with the listed audience (n=112).				
Classroom Style Lecture	52	28	46	45	40
Conference	39	31	30	29	25
Interactive Satellite Broadcast	–	–	–	–	–
Print Materials	55	35	48	53	45
Videotape	35	–	30	29	30
Satellite Broadcast	25	–	–	–	–
Audiotape	–	–	–	–	–
CD-ROM	–	–	–	–	–
Web-Based Instruction	–	–	–	–	–

– Less than 25% of respondents reported successful use of the format with this audience.
 n = number of respondents

Profile of Key Informant Awareness of 1998–2003 Strategic Plan

The 112 members of NTCA/NTNCC with direct responsibility for TB training and education were asked about the 1998–2003 *National Strategic Plan for TB Training and Education*. Respondents were asked to report personal awareness and standardized use of the Strategic Plan (Tables 9A and 9B).

FAMILIARITY AND USE

A minority of responding NTCA/NTNCC members, 47 of 112, reported familiarity with the Strategic Plan (see Table 9A), and only 29 of the 112 members reported use of the document (see Table 9B). A majority of respondents who reported use cited three activities influenced by the Strategic Plan: identification of resources; promotion of collaboration; and establishment of priorities. A substantial minority cited identification of gaps as another key use.

	Percent of respondents (n=112)
	%
Familiar with the 1998–2003 Strategic Plan	42
Familiar with the 1998–2003 Strategic Plan and reported use of the Strategic Plan	26

n = number of respondents

	Percent of respondents familiar with the Strategic Plan who reported the listed use (n=29)
	%
To assess the current state of TB training and education in the U.S.	–
To identify available training and education resources	70
To identify gaps in available TB training and education resources	44
To provide information and rationales to policy makers and/or funding organizations	–
To promote collaboration in TB training and education	63
To establish priorities or to target training resources	59

– Less than 25% of respondents cited the listed use.

n = number of respondents

IV. CONCLUSIONS

This survey profiled recent TB-related staff trainings and events that were arranged or delivered by professionals involved in TB training and education. The profile suggests high utilization of classroom-style lecture with print and video as supporting elements. Growth in the use of new technologies, such as CD-ROM and web-based instruction, is present, but has not yet made the formats common. State health departments, the CDC–DTBE, and the Model Centers are the central resources for TB T&E, though a variety of other sources are also used. Nurses represent the largest segment of the audience being trained, which is reflected in the frequency of nursing-appropriate topics and educational credits.

The survey also profiled perceptions held by key informants, the responding members of NTCA/NTNCC who are directly responsible for the delivery of TB training and education. They were asked for estimates of the frequency of local TB trainings and events. The profile of their responses suggests there may have been a decrease in the frequency of TB trainings and events at the local, regional, or state level, though it cannot determine whether increased use of self-study and other distance learning materials were a primary cause for the change. The profile does suggest that key informants believe that in only a few of the key audiences are a majority of individuals receiving appropriate TB training and education. Penetration of TB T&E is believed to be strong among TB program audiences, but TB T&E is not thought to be reaching significant percentages of important external audiences—despite a general availability of core TB topics.

Finally, the survey asked key informants about familiarity and use of the 1998–2003 *National Strategic Plan for TB Training and Education*. Almost half of the responding NTCA/NTNCC members were aware of the Strategic Plan, but only a quarter reported using it.

STRATEGIC PLAN • ATTACHMENT C

NATIONAL RESOURCES FOR

Planning Tuberculosis Training and Education

I. NATIONAL STRATEGIC PLAN FOR TUBERCULOSIS TRAINING AND EDUCATION

The *National Strategic Plan for Tuberculosis Training and Education* has been developed as a means to promote coordination and collaboration among a large, decentralized group of stakeholders involved in TB training and education and to serve as an organizing mechanism for their efforts. First published in 1999 for the period 1999–2003, the Strategic Plan has been modified and updated to make it a valuable tool for the next five years, 2004–2008. The Strategic Plan reflects the best thinking of a broad-based group of TB experts representing the full range of the organizations and constituencies that can be counted among these stakeholders.

The purpose of the Strategic Plan is to engage the persons and groups it addresses, secure consensus, and promote coordinated action that leads to results. Unlike strategic plans in hierarchical organizations, this plan is not a means to compel action, but rather to encourage voluntary cooperation. Its mission is simply stated: *The National Strategic Plan for Tuberculosis Training and Education promotes and guides training and education efforts to control and eliminate tuberculosis.*

The goals identified in the Strategic Plan indicate the broad accomplishments that are essential if TB training and education are to achieve their potential as effective strategies for TB control and elimination. The five goals toward which the plan directs action are:

- Build, strengthen, and maintain collaboration among the key agencies and organizations in training
- Build, strengthen, and maintain collaboration with global partners
- Develop, improve, facilitate access to, and maintain availability of, TB training and education resources

National Resources for Planning Tuberculosis Training and Education

- Improve and sustain knowledge, skills, and practices tailored to local epidemiological circumstances
- Identify and mobilize financial resources for TB training and education

The Strategic Plan's strategic objectives are the starting points for action. Each objective defines a desired outcome and specifies strategies that will lead to the realization of that outcome. It also clearly identifies the types of organizations that can and, it is hoped, will take action to implement those strategies. The strategic objectives offer markers for measuring progress and provide practical starting points for coordination and collaboration.

The Strategic Plan is a blueprint for action. It urges its readers, and all groups and individuals who are stakeholders in TB training and education, to take steps toward the achievement of the plan's mission and goals. The *National Strategic Plan for Tuberculosis Training and Education* is available as a printed document and online at: <http://www.nationaltbcenter.edu/strategicplan/>

II. TUBERCULOSIS EDUCATION AND TRAINING RESOURCE GUIDE AND RESOURCE WEBSITE

The *Tuberculosis Education and Training Resource Guide* and the related *Tuberculosis Education and Training Resource Website* are compendia of TB education and training materials and resources available for providers, patients, and the general public. These inventories were developed to bring appropriate materials and resources to the attention of audiences with a need for TB information or an interest in TB training and education.

TB Education and Training Resource Guide

The *Resource Guide* was created in 1990 as a cooperative effort by two agencies within Centers for Disease Control and Prevention (CDC): the Division of Tuberculosis Elimination (DTBE) and the National Prevention Information Network (NPIN). It is now in its third edition, which was produced in 2003.

As part of the development of the original Strategic Plan, the planners compiled an inventory of more than 540 TB training and education resources, representing over 140 U.S. and international agencies, organizations, and jurisdictions. This inventory was incorporated into the *Resource Guide*.

National Resources for Planning Tuberculosis Training and Education

The print version of 2003 edition of the *Resource Guide* may be obtained in the following ways:

- Through the DTBE's online ordering system at: <http://www.cdc.gov/tb>
- Through the CDC Voice and FAX Information System by calling the toll free number: 1-888-232-3228, then selecting 2, 5, 1, 2, 2. (note: you may select these options at any time without listening to the complete message) and requesting item # 99-6352

The *Resource Guide* is also available online, in HTML and PDF versions, at:

<http://www.cdcnpin.org/scripts/tb/guide/toc.asp>

TB Education and Training Resource Website

To make the Resource Guide a more complete and dynamic tool, DTBE developed the *TB Education and Training Resources Website*. The website is set up as an online database that enables its contents to be easily searched and sorted, and facilitates ongoing submission of new materials to the growing compendium. The *TB Education and Training Resources Website* can be accessed through the Internet at: <http://www.findtbresources.org>.

The *TB Education and Training Resource Website* is an excellent place to begin when searching for TB training and education resources. The database, which is updated constantly, currently contains more than 1,100 resources from the U.S. and other countries. These resources include TB training and education materials directed at two principal types of audiences: 1) health professionals who work with TB-related issues, including nurses, physicians, health educators and communicators, medical and nursing school students, and occupational health and infection control workers; and 2) patients and the public, including people with active TB disease or latent TB infection (LTBI). Some of the materials listed target foreign-born persons and at-risk racial/ethnic minorities; many of these materials are available in multiple languages.

In addition, the *TB Training and Education Resource Website* provides information on the following:

- Organizations that offer funding opportunities in the biomedical sciences, and websites that provide databases listing such opportunities
- Organizations that provide information and services about TB
- Upcoming TB-related events
- Listservs and digests that offer subscribers no-cost networking opportunities and ways to share resources and best practices

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- Access to a catalogue of TB-related photographs and images, provided through a link to the Stop TB Partnership's Image Library
- Direct links to select Internet sites that provide information on TB and related health issues

All agencies involved in TB control are encouraged to make regular use of the *TB Education and Training Resources Website*, both to list new products they have produced and to ascertain what materials are already available. This participation will make the website an even more effective means to conserve funds, coordinate efforts, and share resources.

How to Submit Materials and Resources

The CDC regularly updates the *TB Education and Training Resource Website* and intends it to be the most robust and comprehensive collection of TB education and training materials available. Because this is a dynamic process, help is needed to keep this collection up to date. If you or your organization has any TB educational or training materials, please submit them for inclusion in the next edition. Materials may be submitted in any of the following ways:

- Print and complete a Submission Request Form (which can be obtained at <http://www.findtbresources.org>) and mail it to the CDC National Prevention Information Network, Attn: Information Sciences Manager, P.O. Box 6003, Rockville, MD 20849-6003
- Print and complete a Submission Request Form and fax it to: 301-562-1050, Attn: Information Sciences Manager
- Send an e-mail to info@findtbresources.org with the title, author, contact information, distributor, format, and copyright. A database specialist will contact you to gather the other information needed to include or update your materials in the database.

At the time of submission, please send two complimentary copies of your materials to NPIN at the address above. Although the Submission Request Form will help in the cataloguing of materials, it is not required. Your help is greatly appreciated.

III. TB TRAINING AND EDUCATION NETWORK

The TB Education and Training Network (TB ETN) was instituted by CDC in 2001 to bring together TB professionals to share ideas, information, and experiences. Its goals are to build collaborations; to improve access to and sharing of resources; to promote the exchange of ideas,

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information, and experiences; to provide information about TB courses and training initiatives; and to assist members in building education and training skills.

TB ETN is helping to build a cadre of TB educators and trainers with improved skills, knowledge of available resources, and the ability to serve as a resource for high-priority needs, such as TB outbreaks and the implementation of new guidelines. TB ETN offers annual meetings and workshops dedicated solely to health education, training, and communication issues.

TB ETN is open, nonexclusive, and voluntary. All persons who have an interest in TB education and training issues are invited to join. TB ETN's growing membership currently numbers more than 400 persons worldwide. The members represent state and local TB programs, correctional facilities, hospitals, nursing homes, federal agencies, universities, the American Lung Association, the Model TB Centers, and other U.S. and international organizations interested in TB education and training issues.

There are no membership fees and new members may join at any time. There are two categories of membership. *Active members* include individuals who have the lead role for TB education and training in their agencies. Others are invited to join as *information-only members*. To join TB ETN, send an e-mail requesting a registration form to: tbetn@cdc.gov. For further information, visit the TB ETN website at: <http://www.cdc.gov/nchstp/tb/TBETN>

IV. TB-EDUCATE LISTSERV

TB-Educate is an electronic listserv that was established to aid communication and build community among those involved in TB education and training. It gives subscribers the opportunity to exchange information about TB education and training issues. The listserv is used as a communication vehicle for TB ETN members, but you do not need to be a TB ETN member to subscribe. TB-Educate is open to anyone who has an interest in the topics being discussed.

Subscribers have the option of receiving immediate delivery of each message or a once-a-day delivery of a digest containing all messages posted in a 24-hour period. To subscribe, send a blank e-mail message to: tb-educate-subscribe@cdcnpin.org. You also may subscribe on-line at: <http://lists.cdcnpin.org/mailman/listinfo/tb-educate>

The TB-Educate Listserv is sponsored by CDC–DTBE and CDC–NPIN.

STRATEGIC PLAN • ATTACHMENT D

KEY TO ACRONYMS

A/DA	Alcohol and drug abuse	CDC	Centers for Disease Control and Prevention
AAPCHO	Association of Asian Pacific Community Health Organizations	CDI	Communicable disease investigator
ABIM	American Board of Internal Medicine	CEBSB	Communications, Education, and Behavioral Studies Branch (CDC)
ACA	American Correctional Association	CHCP	Correctional healthcare provider
ACCP	American College of Chest Physicians	CIH	Center for Immigrant Health
ACET	Advisory Council for the Elimination of Tuberculosis	CIS	Citizenship and Immigration Service (U.S. Department of Homeland Security)
ACF	Administration for Children and Families (U.S. Department of State)	CME	Continuing medical education
AETC	AIDS Education and Training Centers	CNTC	Francis J. Curry National Tuberculosis Center
AIDS	Acquired Immunodeficiency Syndrome	CSAT	Center for Substance Abuse Treatment
AITRP	AIDS International Training and Research Program	CTCA	California TB Controllers Association
ALA	American Lung Association	DGMQ	Division of Global Migration and Quarantine Mission (CDC)
ALTA	Area Laboratory Training Alliances	DHS	U.S. Department of Homeland Security
ANA	American Nurses Association	DOT	Directly observed therapy
AOD	Alcohol and other drug	DOTS	Directly observed therapy short course
APHL	Association of Public Health Laboratories	DTBE	Division of Tuberculosis Elimination (CDC)
APIC	Association of Practitioners of Infection Control	HAART	Highly Active Anti-retroviral Therapy
ASM	American Society of Microbiology	HCH	Health Care for Homeless
ATS	American Thoracic Society	HIV	Human Immunodeficiency Virus
ATTC	Addiction Technology Transfer Centers	ICE	U.S. Immigration and Customs Enforcement (U.S. Department of Homeland Security)
BCG	Bacille Calmette-Guerin vaccination	IDSA	Infectious Disease Society of America
BOP	Federal Bureau of Prisons	IMG	International Medical Graduate
CAP	College of Pathologists	IOM	Institute of Medicine
CBO	Community-based organizations	IOM[2]	International Organization of Migration (Position Paper 6 only)
CBP	U.S. Customs and Border Protection (U.S. Department of Homeland Security)		

Key to Acronyms

ITREID	International Training and Research Program in Emerging Infectious Diseases	NTNCC	National TB Nurse Consultant Coalition
ITSC	International Tuberculosis Surveillance Centre	OASAS	Office of Alcoholism and Substance Abuse Services (New York State)
IUATLD	International Union Against Tuberculosis and Lung Disease	ORR	Office of Refugee Resettlement (U.S. Department of State)
JCAHO	Joint Commission of Health Care Organizations	PHN	Public health nurse
KNCV	Royal Netherlands Tuberculosis Association	PHO	Physician/hospital organizations
KSA	Knowledge, skills, and abilities	PRM	Bureau of Population, Refugees, and Migration (U.S. Department of State)
LEP	Limited English proficiency	SA	Substance abuse
LTBI	Latent TB infection	SAMHSA	Substance Abuse and Mental Health Services Administration
MDR TB	Multidrug-resistant TB	SAPT	Substance Abuse Prevention and Treatment
MMWR	<i>Morbidity and Mortality Weekly Report</i>	STD	Sexually transmitted diseases
MSO	Medical service organization	TBCTA	TB Coalition for Technical Assistance
NCCHC	National Commission on Corrections Health Care	TBEC	TB Education Center (Texas Department of Health)
NCQA	National Committee for Quality Assurance	TB ETN	TB Education and Training Network
NHCHC	National Health Care for the Homeless Council	TCCC	Tuberculosis Curriculum Coordinating Center
NHLBI	National Heart, Lung, and Blood Institute	TPEB	Training and Public Education Branch (Texas Department of Health, Bureau of HIV and STD)
NIAID	National Institute of Allergy and Infectious Diseases	TSRU	Tuberculosis Surveillance Research Unit
NIH	National Institutes of Health	USAID	U.S. Agency for International Development
NLTN	National Laboratory Training Network	WHO	World Health Organization
NPIN	National Prevention Information Network	WHO EURO	WHO Regional Office for Europe
NTCA	National Tuberculosis Controllers Association		

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